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Contact Glasses

Willis S. Knighton, M.D.

ACTORS and athletes, especially, find contact glasses valuable; upon the stage and in certain sports, they are sometimes indispensable

DURING the past year or so there have been several articles in the lay press pertaining to a new invisible glass which could be worn under the lids with comfort, thus doing away with ordinary spectacles. Unfortunately, there has thus arisen in the minds of the lay public a rather false impression concerning "contact glasses."

In the first place, these lenses are not new. Credit for their invention goes to Herschel who apparently made the first glass in 1827 by casting from a gelatine negative. His purpose was to correct only glaring errors of refraction which could not be helped by the use of ordinary lenses, and although his success was limited by the crude manufacturing instruments at his disposal, he initiated a series of experiments which have contributed greatly to our present knowledge. Perhaps the most important of these were the experiments of A. E. Fick in 1887. As the result of his demands for better contact glasses, manufacturing methods were improved, and today we have two highly specialized forms.

The Zeiss glass is ground very accurately and can be made to suit the curvature of any eye. It is a clear bowl-shaped shell in which the central portion is usually slightly elevated. This is the corneal segment; it is the more important part as far as vision is concerned for, by the use of different curvatures, different types of refractive error can be corrected accurately. The outer rim of the contact glass is the scleral portion (that part covering the white of the eye) which, although it has nothing to do with the

correction of vision, is fully as important to the patient because it determines the wearing comfort. The whole glass, being perfectly transparent, is invisible to any but the most critical observer.

Contact Lenses

The Mueller glass is blown instead of being ground and, although it is perhaps one of the most perfect examples of the glass-blower's art, it is not nearly so accurate in its curvatures as the Zeiss glass.

Courtesy of A. Haustetter, Inc.
Appearance with Regular Spectacles

Appearance with Invisible Contact Glass

As a matter of fact, all fittings with the blown type of glass must be made more or less empirically by selection from a large number, and when one of these glasses is to be replaced, the same patient selection must be resorted to as in the first test. (When the ground glass is to be replaced, the patient simply orders another of the

same curvatures.) The blown glass looks more like the shell of an artificial eye. The central corneal segment is transparent as in the ground glass, but the scleral segment, which is oval in shape and broader than the ground glass, is opaque and colored to represent the patient's sclera, so that, although it is not invisible, its colorings and markings look like the patient's eye.

How Contact Glasses are Worn

A contact glass is worn under the lids with the scleral rim resting directly upon the patient's eyeball, i.e., over the sclera. The corneal segment is separated from the patient's cornea by a thin layer of normal physiological salt solution. Upon these two conditions depend the main advantages and disadvantages of the glass.

In the first place it is impossible, mathematically and optically, to correct any error of refraction by placing a fixed lens half an inch in front of a moving eyeball. This is the condition which obtains when ordinary glasses are worn. In small refractive errors the inadequacy of this system is not noticed by the patient, but in higher errors there is distortion at the edges of the correcting lens and the field of useful, clear vision is limited. The contact glass, being worn upon the eyeball itself, becomes a definite part of the eye's optical system and maintains exactly the same correction for every position of the eye, giving the patient a wider and more natural field of clear vision. Indeed, most patients wearing contact glasses for the first time exclaim over the general clearness and brightness of objects even though the central vision may be no better than with their old glasses. Such a clear field of vision is so important and desirable that every ophthalmologist will endeavor to preserve it at all costs.

Among many other technical defects of ordinary lenses which can be overcome by the use of contact glasses, is the condition of unequal refraction in the two eyes. Many of these patients can never find real binocular comfort with ordinary spectacles. This is especially true where a cataract has been removed from one eye while the other has normal vision. When a contact glass is worn over the aphakic eye (the one from which the cataract was removed), the two eyes are enabled to work together in harmony.

The most dramatic correction of vision is found in those cases

of keratoconus, or conical cornea, where the cornea is so irregular in shape that ordinary lenses can never help much. As soon as the contact glass is placed over the eye, however, with the physiological salt solution in the corneal segment, the patient's irregular cornea is rendered inoperative. It disappears from the picture, just as a glass rod may become invisible when it is placed in a tumbler of water, and because it is replaced optically by the regular curvature of the contact glass, the patient immediately obtains vision through an undistorted artificial cornea.

High degrees of astigmatism, where the faulty curvature lies in the cornea, may be corrected similarly, but where the astigmatism lies inside the eye, i.e., in the crystalline lens (lenticular astigmatism), contact glasses are of no avail. Except in this type of astigmatism, contact glasses approach the perfect correction of refractive error more closely than any other form of lens known.

Eye with conical protrusion of the cornea (keratoconus) and correcting contact glass.

In high errors of hyperopia or myopia, contact glasses may be used to correct the refraction by providing the patient with an artificial cornea that is more curved or flatter than his own, as the case requires. This would do away with ordinary glasses, but whether it would be advantageous would depend upon the amount of error corrected and the patient's personal requirements.

Contact Glasses Safe

Strangely enough, the fact that they are worn under the lids must be listed as an advantage as far as danger from breakage is concerned. The lids themselves afford a protection denied the wearer of spectacles. One patient reported an automobile accident in which he was thrown from the car and knocked unconscious. His contact glasses survived in position, but ordinary lenses would undoubtedly have broken and might have done considerable harm. In other respects, this position under the lids in the ordinary wearing of contact glasses has yet to show any deleterious effects upon the patient's eye. As a matter of fact, several authors have felt

that some of their cases of keratoconus have shown improvement after several months' time.

The blown glass is supposed to be better tolerated by the patient because of its smoother edges, but experience seems to show that, when the ground glass is properly fitted, it is just as well borne. Four or five hours a day used to be considered a good wearing time, but lately there have been more and more reports of patients wearing their glasses as long as twelve to seventeen hours daily. One patient has worn his to bed several times because he forgot they were in position! The greatest difficulty seems to be encountered in the irritation to the lids, even where the fit to the eyeball is perfect. Usually this is soon overcome, but when it persists the patient must recognize his limitations and remove the glass at intervals until the lids become more tolerant. It follows naturally that when the contact glasses are *necessary* to good vision the patient will persist in his efforts to overcome the initial strange feeling, but when ordinary lenses will do just as well, they offer an avenue of escape every time the lids feel uncomfortable. It is my experience that patients with irregular refractive errors which are not benefited by ordinary lenses, invariably learn more quickly to use their contact glasses and wear them longer each day than those patients who try to wear them for the sake of vanity or as an experiment.

Future of Contact Glasses

Any competent ophthalmologist who understands the principle of these glasses will find little difficulty in fitting them to a patient's eyes. It is customary to use a mild local anesthetic at the first examination while determining the corneal curvature necessary for the patient's best vision, and in this manner to accustom the patient to the idea of wearing something under his lids. At subsequent tests the anesthetic is omitted during the search for the scleral curvature which gives the most comfort and fits best. These examinations are very important in determining adequate clearance between the patient's cornea and the glass, and in securing even pressure of the scleral segment. Many trials may have to be made before the patient and the doctor are both satisfied, but in the end the patient should be able to wear the glasses with perfect comfort.

The knack of inserting and removing them is easily acquired. The trick in avoiding air bubbles in the corneal segment comes soon after and most patients remove their glasses once or twice a day, if the solution tends to become turbid.

Contact glasses will never entirely replace ordinary lenses because of their greater cost, and because they are less simple in manipulation and in adaptability to the ordinary requirements of a rest glass or a reading glass. Upon the stage and in certain sports they may be indispensable but the patient must decide for himself whether they are advantageous in his particular field of activity. Unless their superiority is obvious, he would better stick to his old glasses.

Many types of error are benefited beyond the greatest hopes of the patient, and, to those unfortunates heretofore economically blind because of irregular corneas which nothing else could correct, a new world of useful vision is opened.

Home Treatment of the Eyes*

William L. Benedict, M. D.

SOME popular fallacies about home treatment of the eyes are described here by Dr. Benedict, who cautions against attempting home remedies instead of consulting a physician

WHEN we consider the great variety and number of hazards to which our eyes are exposed in the ordinary pursuits of life, the wonder is that many more people are not deprived of the faculty of vision or are not so handicapped by poor vision that they become a heavy economic burden on the State. Exposed as the eyes are to flying particles in the air, to drying and hot winds, to extreme changes in temperature, and to flashes of bright light, serious injuries are relatively infrequent as compared to injuries of other parts of the body. This is partly because the eyes are well protected by being situated in a bony orbit, and partly because they lie behind the eyelids, which can be quickly closed against mild external injurious agents that attack them from without.

Injuries to the eyes have decreased in number since the early stages of industrial development, when protective devices on machinery were not commonly employed. The incidence of diseases of the eyes caused by infection has been greatly reduced by measures of personal hygiene which people in general have adopted, and because they have come to understand that diseases such as granulated lids and other acute inflammations can be spread by personal contact. There has been an effective campaign against industrial injuries to the eyes and against the propagation of disease of the eyes by insanitary practices. Blindness has been ma-

* Read as part of the Sunday afternoon program for the public under the auspices of the American Academy of Ophthalmology and Otolaryngology, Boston, Mass., September 17, 1933.

terially reduced as a result of campaigns carried out by members of the medical profession and by organization of laity. There is yet great work to be done in educating the public in the care of eyes that have been injured, in the treatment of minor ailments or diseases of the eyes, and in the treatment of diseases of the eyes in their early stages. We cannot expect that a large number of people will be sufficiently acquainted with remedies for diseases of the eye to know what to use under given conditions or to have available the remedies which are commonly employed by physicians.

It is possible, however, to obviate a great many of the improper practices that have been handed down through tradition, and to substitute proper procedures. The "safety first" campaign during the past few years has materially reduced the incidence of industrial accidents, and by a similar campaign people can be taught the best practices to employ in cases of minor injury and in the early stages of diseases, not only of the eyes but of other parts of the body as well.

It is in obedience to a natural desire that people wish to employ some means of mitigating the sufferings of those who are injured. It is natural to attribute a cause to every physical disorder. Often the remedies applied are associated with the type of injury received. Extracts from herbs and juices of plants are recommended for certain types of injury or disease, and in the absence of definite information the mind quickly reverts to the use of some home remedy. The result may be beneficial; often it is harmful, many times indifferent.

Because the general public has learned that many eye lotions are put up in a solution of boric acid, the better informed immediately turn to this solution as the one safe substance that can be used for any disorder of the eye. Hence, we find that many people are using an eye cup, giving the eye a daily bath in boric acid solution, in the hope that their disorders will soon pass away, and the necessity for visiting a physician may be obviated.

I do not wish to condemn this practice, but merely to cite it as an example of what persistent mention of a single agent will do toward getting the public to understand its use. The healing properties of boric acid are infinitesimal. It is used chiefly by physicians as a vehicle to carry small dilutions of more potent drugs,

and because it retards the growth of fungi or of contaminating bacteria, it forms a convenient way to dispense medicines for the eye.

I think there is very little understanding on the part of the public as a whole that a most potent antiseptic agent is supplied to the eye by natural means: that is, by the tears. Laboratory experiments have shown that for most disease-producing organisms, normal tears are hundreds of times more effective in protecting the eye than solutions of drugs in such strength as can be borne. The tears are supplied in amounts that are properly regulated, and counteract the effect of most air-borne bacteria. There is not sufficient reason for the regular use of eye baths, as there may be for cleansing the teeth or gargling the throat. The practice of giving eye baths with any solution when eyelids are not diseased, or except on the advice of an oculist, should be discouraged. People should not be influenced by propaganda from some radio stations or through beauty columns of some newspapers to indulge in practices that have no virtue in themselves and constitute unnecessary or even harmful attempts at hygienic practices.

There are very few remedies for the eyes that are specific; that is, remedies which are designed to counteract particular diseases or disorders of the eye. For many years people have used an extract of a certain seaweed to retard the development of, or to dissolve, cataract. Many years ago the recommendation of this drug was so strong that it was included in encyclopedias and in dictionaries and textbooks. Fortunately, its use in this country is, I believe, rare, and I am convinced that there is no scientific foundation for the statement that its use has any of the effects claimed for it. This same statement, I may say, holds true for other substances that have been recommended for retardation or development of cataract.

There is not one bit of scientific proof that there is any drug or other agent by which the development of cataract can be generally retarded, or by which cataracts can be removed without operation. A great deal of experimental work is being carried out in laboratories and clinics, by members of the medical profession, with the hope that some means will be found to obviate the necessity of operating for cataracts. Gleams of success here and there appear

in scientific articles written for the information of those engaged in similar pursuits and who know how to evaluate the results recorded, but such articles should not be interpreted by the public as having much significance. Physicians may prescribe drugs or diets or exercises with the hope that by this means the development of cataract may be influenced, but such advice should never be passed from one to another as an acceptable practice.

The public never can be expected to appreciate the specific value of drugs, to be able to know in what strengths they should be used, to know how they are prepared, how they are to be dispensed, or how long they can be kept without deterioration. Most of the drugs that are used for the eye are used in high dilutions and must be freshly prepared. The practice of having a medicine cabinet in the home, with medicines, drugs, and chemical solutions, is, in most homes, more of a detriment than a benefit. Serious injuries to the eyes sometimes result from the use of medicine from the wrong bottle, or the drug itself may become so inert through age as not only to be ineffective but even harmful. If medicines are to be used for the eyes, they should be prescribed for a specific ailment, freshly prepared, and immediately disposed of when their use is no longer required. Many diseases of the eyes are so similar in appearance and so similar in their courses that one person will recommend to another that he use the same remedy that has been effective in his own case. Such a practice is harmful, and many serious accidents have come about through this means. By the continued use of medicines far beyond the time recommended by the physician, the eyes may be discolored, stained, and otherwise permanently changed. Medicines for the eyes rarely should be kept for more than two months.

I think it is well known and appreciated by people at large that there are no miraculous cures for any diseases or disorders of the eye. The faith that our grandmothers had in the use of goat's milk, sauerkraut juice, snake oil, milk and honey, or tobacco juice, has been largely dissipated by an intelligent public. They realize that there is no virtue in the hair of the dog that bit them. They know the value of cleanliness and the necessity of seeking medical advice when the symptoms of disease appear. They have learned that it is not advisable to attempt to remove foreign bodies from

the eye in workshops where the instruments used may be so contaminated as to result in disease of the eye more serious than would be caused by the original injury. They have learned the value of prophylactic treatment of the eyes of the newborn, which has reduced the incidence of babies' sore eyes and consequent blindness to a great extent. They have learned to discount the claims of cures made by some dispensers of patent medicines and are rapidly learning to discount the statements made by some radio salesmen and by some writers in beauty columns. The price the public has had to pay for its experience has been the loss of sight for thousands of people through misinformation, through misdirection, through misplaced confidence, and through ignorance. Members of the medical profession stand always ready to give to the public the results of the experience gained through years of clinical practice and laboratory experiments. They have only a desire to help and cannot countenance misdirection or misinformation for pecuniary gain.

I would say very emphatically, be cautious of any home remedy. Be free to consult your physician and in this way help to preserve and maintain the great blessing of vision for all.

Eyesight in Mental and Physical Development

Arthur P. Wilkinson, M.D., F.A.C.S.

CHARACTER and personality are shaped by eyesight, Dr. Wilkinson believes; the nearsighted child may become an introvert and the farsighted child may develop into an extrovert, if correction is neglected

A FEW days ago I was having lunch with one of my friends who is a dentist. He mentioned a colleague of his who showed certain eccentricities. I said, "Well, he is nearsighted." (On several occasions I had noticed his thick concave lenses.) With a questioning look on his face my friend inquired, "What has that to do with his personality?" So I began to point out a few characteristics of this man about whom I knew little.

"He has the personality of an introvert—that is, he is self-centered, selfish, has a reputation of being a 'know-it-all,' has few friends, and is never considered 'one of the bunch.'" "Well," my friend remarked, "very good, but why? I never thought of eyesight as having any effect on character." So the discussion deepened.

The experiences of the early years of a boy's life mold him into a certain type of individual, with actions and reactions as definite as chemical reactions. Whether changes take place in a test tube or in the body makes no difference. But we must realize that the biological organism is a very complex chemical factory. For example, our mouths water when we see good food. What has this to do with our present subject? It helps to show that for every action there is a reaction; personality is the sum total of reactions. Therefore, these first actions and reactions mean everything in the young, plastic individual.

The Making of an Introvert

The nearsighted child cannot cope with his playmates on the playground. He is never wanted on a ball team, for he cannot see the ball until it is within a few feet of him, whether it is at the bat or in the field. At basketball the hoop is indistinct. If he is strong and big enough he may play in the line on the football team, but it is difficult for the nearsighted child to weather the storm and become strong.

Early in life he finds that he gets more pleasure from reading than from playing games. At school he remains indoors and talks with the teacher, while the others are out playing, and he is often the teacher's pet. It is quite easy for him to read, as the nearsighted eye needs to accommodate less than the normal eye. So the moderately myopic or nearsighted boy becomes a bookworm and, in time, an unbalanced individual, and does not develop the qualities that are needed for leadership in later life. He does not care to take walks nor does he appreciate a beautiful sunset. The trees appear to be large green blotches. No individual leaves are differentiated and the horizon is only a haze. Thus, he has none of the diverting influences that draw the attention of the normal child or the motor-minded boy to the roads, fields, parks and woods. Such a child soon appreciates that he cannot excel in games and gets satisfaction from conquest of the mind.

Unconsciously, he develops the attitude that ball games, fishing and walking are a waste of time, because he finds his games in books. Besides, it takes a whole day to go to a football game and come home again, while he may see a dozen games in print and go half or all the way around the world in that time. Unfortunately, however, the armchair sportsman gets none of the fresh air, sunshine, and fellowship that are so important in stimulating an appetite, making strong muscles, and building up personality.

The nearsighted boy reads hour after hour with his head coming nearer the book until, after a time, he rebounds as his nose touches the paper. But his spine cannot come out of the kink and he may grow up to be a pale, round-shouldered, stooped individual, who is a pathetic sight. Curvature of the spine may occur among the

nearsighted, and for this reason, as well as their more sedentary habits, they may be good subjects for tuberculosis.

A nearsighted child is not dependent on others for his entertainment and is likely to grow rather contemptuous of their abilities. He adapts himself poorly to his surroundings and may become a disagreeable person.

Environment and parental training and influence are very important but these may fail to develop broader interests in the child if the eyes are at fault. Bookworms possibly do make many contributions to the intellectual life of the race, but they might be able to do more if they were more likable and adaptable. It is usually possible to correct the defect; hence, it is all the more regrettable that unfortunate personality traits should be permitted to develop for lack of proper correction. When the sight is brought up to normal the child can do and enjoy the things other children do and enjoy. We are told that "Teddy" Roosevelt was a very pale boy with a poor physique. He was nearsighted and this might have been a factor in his physical development, for we know that with glasses he did all the things any normal child or man could do.

The psychological complications arising in those afflicted with cross-eyes need not be elaborated here, since they are so obvious and have been so frequently considered. In this connection, it is well to remember that the earlier cross-eyes are corrected the better the opportunity for cosmetic improvement and for visual and psychic health.

Astigmatism and Eyestrain Affecting Personality

Astigmatism is simply an irregular curvature of the eye in one axis. When an individual with this defect focuses on the stripes of a suit in the horizontal, the ones in the vertical plane are not seen or are distorted. Individuals with astigmatism will often tilt their heads to one side and thus are often subject to lateral curvature of the spine.

Vision often accounts for some of the peculiarities in dress seen on the street. It may be responsible for good or bad taste. Remember this about vision: no one ever saw with your eyes and no one thing appears the same to any two people. It is a physical impossibility. This is often demonstrated on the witness stand

and is too often taken lightly and evidence thrown out because two persons saw the same thing differently at the same time and place.

Eyestrain of any kind brings premature wrinkles upon the forehead. Have you seen individuals with vertical wrinkles in the middle of the forehead and crow's-feet at the outer angle of the eyes? These people are nearsighted. Those who are farsighted have wrinkles across the forehead.

Many men and women who have become nauseated while riding in an automobile or train have doctored themselves for stomach trouble for months and even years, only to find themselves entirely cured when fitted with correct glasses. Often I have seen people cross as bears because they suffered from terrific headaches caused by eyestrain. It might be well to enforce a law compelling the crabbed to have their eyes tested. Glasses would surely help some. Peculiar mannerisms may develop if visual defects are allowed to persist uncorrected.

The Making of an Extrovert

What are the characteristics of the farsighted child? His teachers say he is lazy, a mischief maker, inattentive, or motor-minded. "He is bright enough but just won't study," is often said of him. He plays truant and wants to leave school. The boy is a jolly good fellow; the girl is a tomboy. Huckleberry Finn was farsighted, I am sure. Some people might find a farsighted boy stupid; others will observe how well he can do some things. He hunts well and is an excellent shot. He is often a leader in athletics.

The farsighted child, as is the case with any child, may or may not have good mentality; but he is consciously handicapped so far as near vision is concerned and may seem stupid in those very activities in which the nearsighted excel. Although the farsighted child sees much better at a distance than at close range, he is always under more or less eyestrain. The ciliary muscle is a small muscle within the eye which adjusts the lens of the eye so that images are focused upon the retina, or sensitive part of the eye. In a farsighted child the ciliary muscle is constantly being used to focus the image clearly, whether it be in the distance or nearby; but the strain for close work is so much greater that he chooses

those activities requiring distance vision and avoids those involving the greater strain—reading or close work of any kind.

The human race has had many types of language for several millions of years but printing is a fairly recent method of expression. Thus the constant use of the eyes at close range is a newly acquired need. When we look into the distance the normal eye is relaxed; but when we are reading there is contraction of the ciliary muscle. When there is an error of refraction, particularly in farsightedness, there is an undue and often unbearable load on this muscle. You have possibly all heard of "writer's cramp" occurring after a person writes for a long time. In the same way, commonly, reader's cramp, or spasm of the ciliary muscle of the eye, is found. Thus, a powerful athlete who would scoff at the idea of fatiguing his arm and leg muscles might suffer almost unbearable fatigue from the tiny muscles of his eyes.

Of course, primitive man was farsighted. He had to be to cope with the wild beasts, and other natural elements surrounding him in the wilderness. The nearsighted man would not have survived long; he could not have done so for he could not have seen dangers in time to reach safety. Thus, the nearsighted man was less adapted to primitive life and the farsighted one is less adapted to the long hours of reading necessary these days. Nearsightedness is on the increase and perhaps statistics would show that there may be a relationship to the amount of time spent in reading.

Correcting Vision Defects

Why have glasses become so common and do they weaken the eyes, as some people would have you believe? They have become common because the need for them is being recognized, and, instead of weakening, they tend to strengthen the eyes. In explaining this to my patients, I give the example of the leaning house which, if uncorrected, may fall to the ground, but which, if adjusted and leveled on its foundation, may stand for years. This is true of the eyes. The corrective lens placed before the eye is analogous to the leveling process in building. It is not uncommon in nearsighted individuals to find blindness due to tearing of the sensitive structures of the eye, caused by trying to adjust beyond its power.

I shall never forget a nearsighted patient—mother of eleven

children. She was unable to recognize anyone who came to her door and could distinguish her children only when they were within a few inches of her. She seldom went out for she was afraid to cross the street, as she could not see an automobile until it was within a few feet of her. She had never worn glasses, and she had some tears in the membranes of each eye. However, her sight was still quite good with proper glasses; in fact, the contrast was so great, I hesitated about giving her the glasses with which she could see best, since many individuals cannot stand the nervous shock of the sudden change from seeing little or nothing to seeing many things. One week after getting proper glasses, this woman returned to me a changed person. She had never before realized what enjoyment she was missing. Her whole surroundings had changed. Before, her sphere was from inches to a few feet; now, the world was so large and different. She could not only recognize her children in the house and yard but could appreciate their enjoyment in play. How can one estimate how much this woman had missed in life?

Did you ever play golf with a nearsighted individual? I did—once! He hit the ball and I hunted it. After the ball left the tee it was a blank to him. He never knew where the green was, and he was just as likely to play my ball as his own on the second shot. A few weeks later, I was with another foursome when the same man came up behind us trying the game again. We were all quite peeved for he had been driving into us and finally hit one of the foursome. I soon stopped a quarrel by helping this man out of his difficulties for I understood that he could not see us down the fairway. But, when I tried to explain to my golfing friends that it was unintentional and that he was a fine chap, but handicapped, they were merely amused.

It is easy to see why all of this is so vital when we realize that our eyes give us the larger part of our information. It is only natural that the nearsighted boy should become the peculiar, anaemic, bookish type and that the farsighted boy should be such a healthy specimen, though unruly and sometimes a truant from school. But how can we expect the latter to be otherwise when his muscles in general are eager to exert themselves and his eye muscle must be so strained that reading is really painful to him. No one would

ask a child to walk on a sprained ankle without a crutch; we should consider it brutal to put a boy in a football game with a sprained ankle or back. Yet to a child with crippled eyesight we say, "Go to school, sit down and study." We keep torturing him until he leaves school and takes a job where the afflicted muscles may get that long-needed rest.

But sometimes the individual is put to work at a bench or a machine in a plant, when he again has the same old trouble. At the factory he plays truant and goes to a game to forget his discomfort. These lapses from working routine increase; so he drifts along and after a time begins to sink deeper and deeper. He does not read the papers but he gets his information from others. He votes as his friends advise without reading the qualifications of those running for office. He gets older, regretful that he did not stay at school to get an education. Soon he has boys of his own and they go through this same struggle. Old, poor and unkempt, he presents a pathetic picture, but a new generation of his type is in the making, if care is not taken to prevent it.

While the sad spectacle I have portrayed may seem somewhat exaggerated, none the less there is no doubt that visual defects which handicap the child may be responsible for character defects in the adult. No effort should be left undone to make the child perfect physically, so far as is humanly possible, so that untoward personality traits may not develop to handicap him as he matures.

Conserving the Sight of Myopic Children*

Albert Louis Brown, M.D.

NEARSIGHTED children may be guarded from psychic disturbances—such as self-pity and a feeling of being "different"—by placing them in groups of children who are also myopic; the similar eye conditions establish a common ground for understanding

THE clinical status of myopia at present is that control is practical, cure is not; and that prevention remains for the future.

Theories regarding myopia probably originated with Roger Bacon, who, because he discovered that a concave glass gave myopes better vision, was persecuted for dealing in magic. Much European literature up to 1885 dealt with the dangers of wearing glasses for myopia. These earlier writers did not have a clear conception of the mechanism of this condition and thought that since the accommodation has to be used with glasses, more stretching and pulling would result in increased myopia. Only a few men distinguished the different types. In 1885, Foerster of Breslau reported cases wearing an over-correction for myopia, which resulted in no progression. This work was published in English and made a great impression and opened the way for the modern approach.

Myopia, simply stated, is essentially a long eye. The focusing apparatus is inadequate to cause the rays of light to meet at the macula (center of vision). The simple types of anatomically large eyes usually have normal vision with the proper glasses, do not become progressively worse, and give rise to no untoward symptoms. The progressive type is usually hereditary, is manifest at

* Presented at the Sight-Saving Section, Southwestern Ohio Teachers' Association, Cincinnati, Ohio, Nov. 27, 1933.

ten to fourteen years and in spite of glasses, usually increases in degree until about the age of twenty-five years, the period of greatest increase being from ten to eighteen years. Much has been made of this period of increase, for it is the time of greatest growth and also of school activity. The causes for increase have been attributed to excessive near work, rapid bodily growth with thinning of the ocular tissues and faulty glandular readjustment. Thirty years ago, children of this type were forbidden all close work because it was argued that the act of accommodation and leaning over a desk stretched the tissues. This factor is not denied today, but it has been found that for the myopes whose vision and ocular structures are normal, glasses, in full correction, relieve the convergence strain, which was before discounted for the accommodative pull. The eyes of a person having an uncorrected myopia of over two diopters have to turn excessively during close application. This is relieved by a full correction. The misunderstanding of the relations between accommodation (the focusing of each eye for near vision) and convergence (the co-ordination of both eyes) is responsible for the major differences of opinion regarding glasses. It has been fairly generally accepted that the normal relation between accommodation and convergence is more nearly approached by constant full correction in myopes whose vision and ocular structures are fairly normal.

The next class of myopia is really not a separate one, but I am so dividing it for the sake of discussion. It also happens to be the one of greatest interest for this group. This division deals with the high, progressive myopes, with loss of vision even with correction. As you may easily imagine, the progressive cases might have normal vision early in life and, if tissue destruction ensues, become candidates for visual conservation. This occurs in eyes congenitally defective with a tendency to myopia at birth. Normal eyes at birth are slightly hyperopic and become less so during growth, until about the fifth or sixth year. At this time, the eyes have reached their maximum size. This is the reason that all children of school age should be examined for errors. If the eyes of an infant of one and one-half to two and one-half years are myopic, that child will always be myopic and probably have the progressive if not the malignant type of myopia. If discovered sufficiently

early, such a child should be fitted with glasses at the age of two. Parents may not notice any defect, but frequently one eye is turned or the child holds his head very close when looking at a book or does not recognize objects at a distance when he really knows them. The oculist examines the child's eyes with drops and, by a mathematical measurement with an instrument known as the "retinoscope," can prescribe accurate glasses without the child's co-operation. If the correction is more than −2D, the child should wear glasses constantly, for this at once establishes retinal vision, whereas, if the child is not actually using all the vision it should have with a full correction, there will be an atrophy of disuse and a permanent loss of vision will result. This principle is found throughout medicine, in that when an organ is not used, it atrophies from disuse. Besides this, the stress of convergence is reduced. The relief of these two factors tends to put the eyes in a condition more nearly approximating the normal.

The conservation class receives those cases in which this last type has progressed to a point where tissue destruction has reduced vision. These must be guarded most intelligently. At a very early age, these children recognize that they are different from their normal fellows in school and at play. They quickly develop psychic disturbances and are usually found sitting alone and reading. These two factors are deleterious in themselves. They should not be allowed to single themselves for self-pity, but should be placed in groups of children like themselves, whose similar conditions at once establish a common ground for understanding. Their reading habits can be controlled for the sake of their eyes without the obnoxious comparison with their normally sighted mates. Thus, they are encouraged to continue their education without becoming indifferent because they cannot keep pace with others. This at once establishes a personal confidence and a co-operative spirit with the teachers and doctors.

This attitude makes the subsequent history of children with progressive myopia much more favorable than it otherwise would be. They learn instinctively that they are going to be limited in the use of their eyes. With intelligent guidance, they also learn their visual limitations. Cases of pure myopia (that is, without other ocular defects) with vision less than 20/60 should be fully cor-

rected by glasses at first to determine their ability to be comfortable with such correction in the hope of limiting progression. The early aim should not be concerned primarily with a child's education, but with limiting progression of the myopia. This may be done by glasses, by very short reading periods with the proper type and light, by active physical exercise under guidance, and by learning adaptability in the manual arts in which sight is not a prime factor. Since it is probable that malignant myopia is due to some general constitutional cause, myopic children should be inspected periodically for any physical defects, especially those of the internal glands. This is particularly true of the progressive cases. Malignant myopia may lead to tearing of the retina. As the sclera stretches, thereby producing longer eyes, the internal tissues are likewise stretched and torn. Whenever a tear occurs in the macula, central vision is either suddenly greatly reduced or lost. The vision around the macula attempts to make up for lost central vision, but is wholly inadequate.

High myopia is commonly associated with congenital ocular defects, such as a weak sclera, which is prone to stretch. The future of such cases depends entirely on the mode of individual handling, because such changes are permanent tissue defects which can never be altered by medicine or surgery. It is surprising how children with 20/100 vision get along with a fair degree of side vision. This is due to the cerebral adaptation in forming a composite picture of what is seen. By this I mean that these eyes usually have a constant movement (nystagmus) which rapidly covers the area to be seen and in this way forms a composite picture rather than a photographic image. If such central vision be below 20/70, reading of the ordinary type is impossible. These children should have their defects clearly tabulated by an oculist, the best possible glasses prescribed, and an exact routine outlined for each individual. A thorough physical examination may lead to a contributing cause such as a vitamin deficiency, lack of calcium or thyroid. Such children should at once be encouraged to develop manual dexterity, use the typewriter, and possibly Braille. This relieves the eyes of the greatest stress and enables them to orient themselves by their other senses, using vision as an adjunct to enable them to get about. If this is conscientiously followed,

fully 90 per cent of such cases would remain unprogressive and retain the little vision that they have, to lead happy and useful lives.

The tragic individuals are not those who have lost their vision, for nature resigns them, but those who are gradually losing what little is left, who fear the day when vision will be gone. I know of no greater compensation than to feel that one has been responsible for keeping that small candle flickering in a dark world.

Virginia's Program of Prevention of Blindness*

Helen B. Jones

WE present here another in the series of articles describing what various states are doing to conserve vision. The programs of other states will be outlined in future issues

THE program for the prevention of blindness and the conservation of vision in Virginia does not differ greatly from any other well-rounded program being carried on in a number of other states. While our aspirations have been high and our plans diversified and extensive, the very limited finances of the Virginia Commission for the Blind have necessarily hampered and curtailed the work we have mapped out. However, in spite of our own particular handicaps and those common to other organizations engaged in the same activities, the scope of our work has been state-wide, and meritorious results have been accomplished.

The first problem which confronts us in carrying out our program is one common to all such groups—that of ascertaining what children and adults are in need of eye medical attention. This we accomplish through our contacts with doctors, school and public health nurses, civic and religious organizations and public and private schools. After those needing eye medical care have been located, our field nurse makes arrangements with recognized ophthalmologists to hold eye clinics at which time examinations and refractions are made. These clinics are held only for those who would not be able to procure and pay for this service. When glasses are prescribed, if the family cannot finance the outlay, they are provided by some civic or religious organization in the community. In a state such as ours—predominantly rural—

* Read before the American Association of Workers for the Blind, Richmond, Va., June 29, 1933, and appearing as part of the published *Proceedings*.

conducting these refraction clinics is a tremendous undertaking. However, with the generous co-operation of ophthalmologists throughout the state, we are able to accomplish the maximum of results with the minimum of expense. Last year we held 21 clinics, examined 2,455 persons and refracted 231.

There is a considerable amount of trachoma in certain sections of Virginia and for the past three and a half years we have been holding trachoma clinics at regular intervals in Piney Glade district in Wythe County. This is a small community in the Blue Ridge Mountains, comprising less than ten square miles in area, in which we found sixty persons suffering from the disease. Here a most marked improvement has been made and many saved from total blindness through the efforts of the doctors who administered treatment and the nurses who taught these people the necessity of sanitation and the importance of diet.

One phase of our work, I believe, differs sharply in some respects from similar work in the country in the way in which it is financed. I refer to the organization, maintenance, and supervision of sight-saving classes in the public schools. Since the state makes education compulsory, provisions are made for the visually handicapped. All sight-saving classes in Virginia are handled by the Virginia Commission for the Blind in co-operation with local school authorities. Its part is to provide a full-time supervisor and pay one-half of each teacher's salary, while the school furnishes supplies and equipment and assumes the other half of the teacher's salary.

The problem which confronts educators dealing with children with seriously defective vision—yet not blind—is to make possible an education for those who possess too little vision to profit by the traditional school procedure and those who, because of progressive eye difficulties, would jeopardize their health and their sight by being forced to meet the same standards and use the same equipment as the unhandicapped child.

To provide schooling for those children, Virginia has established sight-saving classes the aims of which are threefold: first, to educate pupils with the least possible eye use; second, to teach them to conserve the vision they possess; and third, to give them some vocational guidance in order that they may later select occupations that will not jeopardize their sight. The first grade class

was organized September 9, 1926, in Richmond and the following fall a class was opened in one of the high schools. September, 1928, saw the establishment of two additional classes in the state, a junior high school class in Richmond and a grade class in Roanoke. The fifth class was opened in one of the Norfolk grade schools in 1929. While we justly feel a sense of gratification for what has already been accomplished toward conservation of vision and improvement of scholarship and mental attitudes, we realize that only a beginning has been made. It is estimated that about one in five hundred of the school population has too much vision to enter a school for the blind, but has some defect of sight which seriously handicaps him in the regular school work. Figuring on that basis, we find that Virginia needs to organize eighty-five classes for white children and thirty-six for colored. Even this number would not adequately meet the present need, for the figures which we have quoted include only those children in public schools. It is apparent that if we were to include the population of all private and parochial schools, the numbers would be materially increased.

Solving the problem of the visually handicapped child residing in rural communities and small villages is even more difficult than in cities. We are helping these children scattered throughout the state whose homes are inaccessible to a sight-saving center. Although our efforts to aid them fall short of what we would desire, we are furnishing Clear Type books and sight-saving paper, and are working with the regular teachers to secure as much special attention for the child as possible, advising them as to the most beneficial way of caring for such pupils.

Besides the number of public school children still unprovided for and those with impaired vision attending parochial and private institutions, special mention should be made of those children with partial sight who are now enrolled in the residential schools for the blind. It is our hope that as soon as possible facilities will be provided so that these children may be placed in conservation of vision classes where every consideration is given the care of their eyes and yet where their education is visual rather than tactual.

A very important phase of sight-saving work is the method of detecting and selecting pupils who require the benefit of these classes. At the present time candidates for sight-saving classes

are discovered by the regular classroom teacher; by city and county school nurses; or by an oculist in his private or clinic practice.

To one experienced in work with visually handicapped children, the need for a satisfactory method of testing the mentality of prospective members of a class looms up as a most important problem. It is assumed that all children assigned to a sight-saving class have normal mentality, but the most conscientious and experienced person has difficulty in determining whether the child's sense of inferiority, timidity, and retardation is due to poor vision or to a subnormal mental condition. A method of ascertaining this accurately is of paramount importance if the high standard of the classes is to be maintained.

Although special attention is naturally given to the physical environment of the partially seeing child, ideal conditions for him should be the same as for any other child. Too little attention has been given in the past to adequate natural and artificial lighting and elimination of glare, in all classrooms; and one of the worthwhile accomplishments of sight-saving classes in Virginia as well as in other states is making teachers and those interested in educational work "eye conscious." This added emphasis will undoubtedly have far-reaching results in minimizing the number needing this special type of instruction.

Just as the ideal physical surroundings should be the same for the child with normal sight as the one with impaired vision, the same educational standards and same curricula apply to both groups, with the exception that in the sight-saving classes changes are made in the method of instruction in those subjects that may otherwise prove harmful to defective eyes. The principal differentiation between the two groups is that in sight-saving classes more attention is given to eye care, and special equipment is provided, such as books in large, clear type, heavy soft lead pencils, maps without detail, unglazed paper with wide ruling, typewriters in large type and other material usable or adaptable for use by subnormal eyes.

Since sight conservation is the primary objective of these special classes, it is gratifying to know that four and one-half per cent of sight-saving class children return to regular grades after eyestrain or

other eye difficulty has been relieved by special care for a time. In the existing classes in Virginia we find in the records of the past year that the eye conditions of forty children remained the same and in seventeen they showed improvement, while in only three did the condition progress. This is undoubtedly due to our insistence in this state that every child have at least one examination annually and children with progressive conditions an examination twice a year.

As is usually the case, teachers in Virginia are recruited from the regular grades and must be highly recommended for the work. It is our policy to train them in the classroom and after they have had two years' experience to urge them to take the special summer training course including lectures on administration and methods of teaching sight-saving classes, anatomy, physiology and hygiene of the eye, and observation in a demonstration class and in an eye clinic. We feel that after a teacher has worked in a class previously to taking this course, she has a background for the special work she is to take up and is better able to appreciate, absorb, and evaluate the suggestions and knowledge which are afforded her. Three of our teachers have already taken the course at Columbia University and the other two have signified their intention of doing so next summer.

The per capita cost of these classes averages between $200 and $225 a year. This is not high in comparison with other special classes, nor is it high when we consider that the establishment of these classes has meant the prevention of ultimate blindness in some, and improved vision in others; the promotion of better scholarship; and the economic saving of assuring to society a life of independent usefulness.

The maximum enrollment in sight-saving classes tends to vary in different states, but in Virginia we limit the number to twelve. When we consider that an average of seven grades is taught in a class and the amount of individual instruction necessary, it is our opinion that this is as heavy a load as one teacher can efficiently carry.

Although only a very few cities have provision in vocational junior high schools for sight-saving class children, we are striving to include this form of training in our program. While we

do little more than suggest possible occupations which would be suitable for our students, we hope that the instruction we have given them in conservation of sight while they were members of our classes will carry over and guide them in choosing wisely after they leave school and enter the business world.

I have confined myself chiefly in this paper to a discussion of what is being done in Virginia to prevent blindness among children of school age and have touched but briefly on the conservation of vision program in relation to persons of more mature years. I do not feel, however, that I should bring this to a close without emphasizing the fact that Virginia early joined forces with those states agitating the eradication of ophthalmia neonatorum. In 1918 the legislature passed a clear and concise law requiring the use of silver nitrate in the eyes of the newborn; since that time this law has been enforced with such vigilance that the number of cases of blindness from this cause has been greatly reduced.

Why Wear Glasses?*

Philip A. Halper, M.D., F.A.C.S.

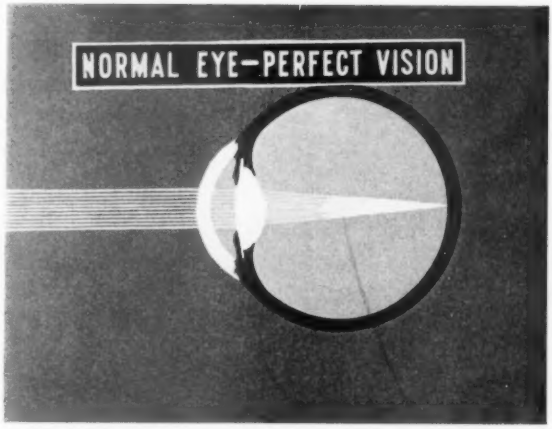
SPECTACLES should be worn to correct refractive errors; to improve muscle imbalance; to relieve whatever ocular symptoms are present. The prescription of glasses, however, does not mean that they must be worn indefinitely or permanently; the eye condition may change, and requires periodic examinations

OUR most cherished sense organ is the eye. Through it we develop adaptability to our environment and satisfaction of our inner capacities for comprehension. The uses to which the race puts the eye are variable: the savage uses his eyes primarily for the hunt and self-protection; the laborer to gain his wage so that he may feed and clothe himself sufficiently; the artisan to pursue his craft and in a measure to enjoy his relationship to his surroundings; the artist and sculptor in order that he may put on canvas or chisel out of granite and marble his interpretations of the splendors of Nature that his vision brings to him. Thus, in the scale of human life from the lowliest savage to the most cultured and advanced urbanite of today we find uses for the eyes that incorporate all the needs of man, from that of obtaining food to the inner responses to science, literature and art.

Strange as it might seem, this most vital sense organ, the eye, is grossly misunderstood and neglected. Though Nature overcompensates in some ways by making it possible to carry on when internal organs are deranged, she is very exacting about the eye; and every defect in vision is a definite and distinct loss for which there is no compensation. Because of this fact and because the use of eyeglasses has become so important to so many in bringing about the best use of the eyes, the topic, "Why Wear Glasses?", is of universal interest.

* Illustrations, courtesy of the Eastman Teaching Films, Inc.

There are three types of refractive errors which require correction with glasses, namely, farsightedness (hyperopia), nearsightedness (myopia) and astigmatism. Since the farsighted eye must exert considerable accommodation effort in order to see near-by objects, one readily appreciates the reason for eyestrain in hyperopes. The

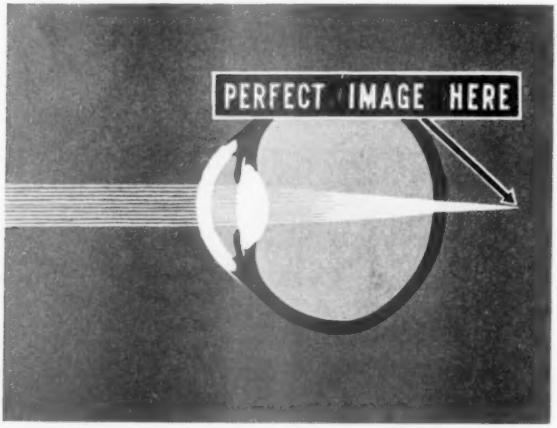


Normal eye—rays focus correctly on retina

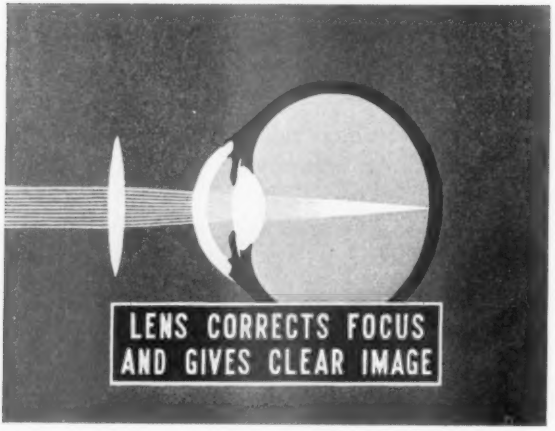
school day, with its attendant demands on the child's eyes, adds greatly to his burden, and home work to such children is an added strain. The nearsighted person, on the other hand, sees poorly in the distance and has a very weak accommodation mechanism. As a rule he sees well for near objects and presents no symptoms. Practically every eye has some astigmatism, a defect in the vision due to irregularities in the curvatures of the cornea and lens in their various meridia. In the otherwise normal eye which is neither farsighted nor nearsighted, a small amount of astigmatism produces no symptoms. Only when there is another refractive error present, or when the astigmatism is of a moderately large amount, does the latter condition become troublesome. It is known that astigmatism is constantly changing and hence the need of repeated examinations when one is aware of its presence.

In order to determine the exact refractive error, especially in

children and young adults, the eyes should be examined in a state of complete rest and relaxation so that accommodation effort may



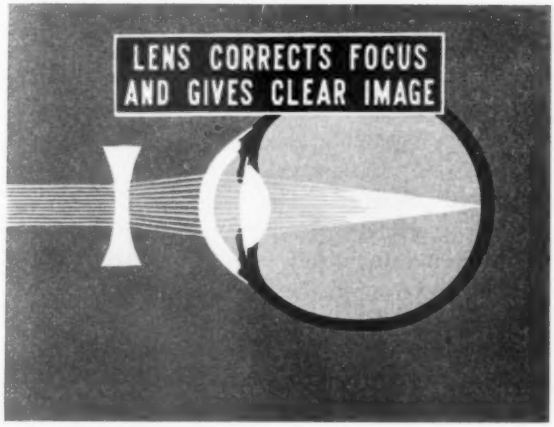
Farsighted eye—blurred vision



Farsighted eye corrected by converging lens—clear vision

not influence the result. For this purpose the eye specialist uses drops which prevent accommodation and enable him to obtain the exact findings.

Besides the refractive errors, there are other conditions which require the use of glasses. These cases fall into the group which have so-called "muscle imbalance." The muscles which are attached to the eyeballs and which move them in the various directions do not always have the normal relationships in their action



Nearsighted eye corrected by diverging lens—clear vision

and often a pair of muscles is either too weak or too strong. Cross-eyes may even result from such a situation. In looking at a distant object the eyes have a tendency to turn outward (the primary position of the eyes in the lower forms of life), and when looking at a near-by object the eyes converge. One can readily understand how multitudinous symptoms arise from abnormal muscle balance. If the muscles which turn the eyes inward are quite weak, the individual will be forced to exert considerable muscle strain in doing close work, since the eyes have a natural tendency to spread apart and he will be constantly pulling them in. When the muscle imbalance is of such a degree that one is unable with his own effort to overcome the difficulty, cross-eyes result. In prescribing glasses the muscle balance should always be considered, and the final correction may even rest entirely on that one factor.

When man approaches the middle years of life, the ability to focus begins to lag and a glass is a necessary adjunct to the eye

for reading and close work. The double glass, or bifocal, has been a fortunate advance since it enables one to see in the distance and at close range with the same pair of glasses.

Spectacles should serve the purpose for which they are intended, namely, to relieve ocular symptoms and to enable the wearer to see better. They should fit his face so as to be as inconspicuous as possible, for no one really looks better with a glass, despite the fad among young people of wearing oxford glasses. Lorgnettes have yet to make their appearance on American streets, though it is no uncommon sight in Europe to see even children using them when on a window shopping tour. A glass should be worn only when indicated. Frequently eyes develop symptoms when one is under severe mental and physical strain, or after an exhausting illness. When a glass is prescribed at such a time it does not mean that the glass is to be worn indefinitely or permanently. Perhaps after several months have elapsed the individual has so recovered as to make the same glass a handicap rather than a necessity. Often a patient is seen wearing the same glass for several years, long after the eye condition has either corrected itself or after the eyes have sufficiently changed to require a different correction. The abuse to which such eyes are subjected in being forced constantly to see through glasses which are either not required or which should be changed is inexcusable. These remarks are not intended to frighten people into the idea that glasses must be changed every six months; the doctor on prescribing the glasses will know according to the type of correction when the eyes should be examined again. A conscientious eye specialist finds a keen delight in taking glasses away from people where they are not absolutely indicated even though they may have worn glasses for years.

Aside from the fact that man needs glasses because of the demands which civilization places upon him, such as constant use of the eyes for close work, abnormal illumination in shops, schools, homes, etc., there are times when he should wear them for protection. This latter fact is especially significant for those who have only one good seeing eye, if the other has been lost entirely through accident or disease, or does not see though from all appearances it shows no gross pathology. Such an individual should wear a glass when fishing, for in casting the hook may easily catch an eye

and destroy it. In windy weather, when considerable dust is blown about, the possibilities of foreign bodies becoming imbedded in the cornea, resulting in infection and scars, should be borne in mind.

In this age of automobiles, many eyes are destroyed by broken and flying glass; especially is this risk great for the driver and the person sitting in the front seat of a car. Glasses worn merely for protection will save many of these eyes and this is a doubly important safeguard when an individual has only one good seeing eye. Non-shatterable glass in automobiles does help to eliminate this danger, but until non-shatterable glass is universally used and we learn that profits, no matter how great, can never compensate for the loss of sight, we must continue to avoid those hazards that deprive us of our most vital sense organs. Should we also find ourselves so engrossed in dangerous sports that we cannot give them up and at the same time protect our eyes, we must be courageous enough when calamity befalls us to face the future deprived of our greatest asset—our eyes.

Editorials

The Gift of Sight

IN SPITE of the hurried and often harried tempo of life in these troublous times, the approach of the Christmas Season cannot but quicken the hearts and senses of the most mundane. The shining light in the eyes of the children singing about the festive tree; the soft flicker of altar candles in the quiet solemnity of the midnight service; the warm glow of flames leaping over the traditional plum pudding, reflected on the faces of a reunited family—must emphasize anew the Christmas message of "Peace on earth; good will toward men."

Yet, with the refrain of peace and good will still ringing through the night, loving parents and doting uncles are giving children guns—real and sham—cannons, darts, arrows, shooters, and, in some parts of the country, firecrackers and fireworks, to add to the expression of Christmas feeling. Each year some seventy children enter schools for the blind because an accident with a shooter, a BB gun, a dart, or a firecracker cost them their sight. How many others carry some lifelong disfigurement because an unthinking adult placed in the hands of a child a hazardous plaything?

In less civilized times, when danger from beasts and human enemies lurked behind every bush, guns, darts and arrows were necessary weapons of defense and protection; children were taught to use weapons skillfully and with discretion. Today, such weapons in the guise of toys add, without cause, to the multitudinous hazards of our civilization; their use is antisocial and destructive.

Those of us who are engaged in the work of preventing all unnecessary blindness must continue to protest against this exploitation of children's play and to further public education against the sale of hazardous toys. We who have seen—in clinics, in physicians' offices, in schools for the blind, and in sight conserva-

tion classes—the pathetic results of thoughtlessly chosen toys, cannot neglect this project in our other efforts to save sight.

What Price Eye Beauty?

To the list of causes of blindness is added a new one, recently disclosed. Thousands of women and girls have been coloring their eyebrows and eyelashes. Already one instance of virtual blindness and a number of cases of serious eye injuries have come to light.

It seems almost unnecessary to call attention to the danger of using powerful chemicals close to the eye, yet the urge for personal beauty is often so great that better judgment is sacrificed to vanity. The woman who is shopping for beauty can scarcely be expected to know about the chemistry, or the contents, of the cosmetics she is using. Her friends have their eyelashes dyed—and nothing happens to them. Thus, she is unaware of any danger in the practice. Much depends on the particular dye used and the particular woman whose lashes are being dyed; some women have a greater susceptibility to dyes than others.

The *Journal of the American Medical Association*, in a recent editorial, commented: "Every physician, and practically every responsible beauty parlor, knows the risk that is run in the application of dyes of the aniline type to the hair of the scalp. It has long been good beauty parlor practice to insist that persons who are to be subjected to an aniline hair dye should be tested for sensitivity to that product. Because of the irritating effects of such dyes, there is no justification for the use of so dangerous a substance around the delicate tissues of the eye."

Since there is no way for the average person to know what is safe, the public should be protected. We have laws to protect us from poisonous foods and dangerous drugs. At the present time, moreover, federal authorities are considering the Tugwell Bill, to strengthen such regulations and to include control of cosmetics. Without expressing approval of the detailed provisions of this bill, we do approve most heartily any legal safeguard from the menace to eyesight which may be present in harmful dyes.

"The loss of even one person's eyesight," says W. G. Campbell, Chief of the Federal Food and Drug Administration, "is such a

terrible thing that we can offer no excuse for not putting the public on guard against a sight destroyer . . . . It is unfair to the ethical and careful manufacturers of cosmetics to force them to suffer an impairment of public confidence which the operations of a few careless, brutal, or unscrupulous manufacturers occasion by their reckless distribution of highly toxic substances."

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request.

The Eyes in Infancy and Childhood*

The development of the special senses in infants and the care of the special organs connected with them are of interest to all mothers.

Sight is the most precious sense we possess; therefore the eyes should receive just the right care from the moment the newborn baby enters the world. Thousands of babies have become blind because proper precautions were not taken to protect their eyes when they were born.

As soon as the baby is born his eyes should be carefully wiped with sterile absorbent cotton prepared before birth, a separate piece of cotton being used for each eye, and the wiping should be done from the nose outward without opening the eyelids. All mucus, blood, etc., will thus be promptly removed from the outside of the eyes.

The inside of the eyes should next be promptly attended to by the doctor in charge. Usually he will provide a one per cent solution of silver nitrate, put up in ampules for the purpose, but it is wise for the mother to have this solution at hand also, in case of urgent need. Two drops of this solution are put into each eye of the baby, the lids being carefully opened so that the drops will surely get inside of each eye.

* Reprinted from the October, 1933, *Pictorial Review*, in which it appeared as "Baby's Special Senses: Sight."

Some doctors prefer another form of silver, but this must be left to individual judgment. Others like to put some normal saline solution drops into the eyes after the silver nitrate has been used.

Infection of the eyes of a newborn baby is one of the most serious maladies that can happen to him. If this takes place the mother should not lose a moment in placing the child in the hands of a skilled doctor. The sight may be saved or lost according to the promptness with which the right treatment is begun. In most states it is required that eye infection shall be reported to the board of health, just as any other infectious disease.

The above-mentioned care having been given the eyes of the infant, he should be placed in a semidarkened room and not be made to bear the glare of an electric light or that of the sun directly in his face until his eyes become a little stronger. During his first few weeks of life the baby shows that too bright a light is very unpleasant; his eyes will often close if he is so subjected. A subdued color for a nursery wall is better for his eyes than plain, glaring white.

As early as the sixth day the baby may follow a bright light in the room with his eyes, showing he is conscious of its presence. The muscles of the eyes of the newborn do not act in harmony, but are irregular. Co-ordinate action is not established until about the end of the third month, but after this time inco-ordinate action is sometimes seen. The baby may look "cross-eyed," as mothers say, on this account. Be careful not to make this condition worse by standing behind him or by dangling toys above his head.

Babies sometimes sleep with their eyes partly open because the eyelids move irregularly, not being yet under full control.

Between the third and fourth months a baby will usually recognize his bottle or a familiar person, showing that he really sees and understands what he is looking at.

It once was part of the regular morning toilet to wash out the baby's eyes with a solution of boric acid, one teaspoonful of the boric acid powder to one pint of sterile water. This is still advocated by some doctors, but others claim that the tears are enough to flush out the eyes.

However, as tears are usually not seen until the third month, or a little later, it seems to me, if carefully done, washing out the eyes

with sterile water or the boric acid solution is just a little wiser from the standpoint of cleanliness. Always use a separate piece of cotton for each eye, and bathe from the nose outward. Burn the cotton afterwards, of course.

The age at which the color of the eyes becomes permanent is often asked. This varies considerably in different cases, but most often by the time the baby is six months of age one can tell whether his eyes are to be blue or brown. There is no really set age, however, when the eyes remain a certain color.

Mothers often worry because little clots of mucus, sometimes even a little pus, gather in the corners of a baby's eyes, especially in the early morning. Sometimes this means that the small tear duct is not well opened, so that mucus can run through it. If, after carefully bathing the eyes every morning with the above-mentioned boric acid solution, this condition still remains, it is best to consult an eye specialist.

He may give special drops and teach the mother how to massage the parts surrounding the eyes so that the ducts will open. It is seldom necessary to do more than this, although the condition may persist for some time. Probing the tiny tear ducts is not often advocated, and not until all other treatment has been tried and has proved a failure.

Pink eye is quite infectious, and will easily pass on from one member of the family to another. It is most important, therefore, that each member of the family have his own wash cloth and towel, his own handkerchiefs, and all his own clothing, and that he does not lend any of his articles for the baby's use, as babies are quite susceptible to all infections of this nature. Soft cheesecloth wash cloths that can be easily boiled and frequently renewed are the best material for a young baby's use, one cloth being kept for the face only, while another is used for the body.

Sties, granulated lids, or any other abnormal eye condition should be very promptly reported to the family doctor, because early treatment is required and may prevent a more serious condition from developing later on.

As the baby grows older and begins to like picture and story books, care should be taken to see that he has a good light, does

not try to read by a flickering firelight or a dim twilight, or be too far away from a reading light, which should be of the proper type.

If it is noticed that he squints, holds his book too far or too near his eyes, he should at once be taken for an eye examination by a reliable doctor. All children should have an eye test before they enter school. Children are often considered backward simply because they cannot see the blackboard well, whereas correct eyeglasses are all that is needed in many cases.

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Routine Wassermann Test for All Expectant Mothers*

Surprisingly great is the variety in the reported statistics concerning the prevalence of syphilis in different countries and under different social conditions. Pregnant women show prodigious variation in this regard. For example, Dr. Goldberg, of the New York Tuberculosis and Health Association, has collected figures from a wide variety of sources in this country. The highest incidence is reported from Birmingham, Ala., where among 629 colored women 24.8 per cent were infected, approximately 1 in 4. In the same community only 8.7 per cent among 116 white women were infected, approximately 1 in 12. These are health department statistics and probably are weighted with a number of indigent and casual individuals. The Chicago Lying-In Hospital where the patients are mostly white has 2.6 per cent incidence of positive Wassermanns among 6,954 obstetric patients, while the Sloane Hospital here reports 3.6 per cent positive Wassermanns among 9,955 women. These again are mostly white. In comparison with these figures it would be interesting to quote the percentage of positive Wassermanns on pregnant women found in the different hospitals of Greater New York. Let me select a few. Harlem Hospital, with a great preponderance of Negroes, shows 15 per cent positive Wassermanns during the past five years. Lying-In Hospital shows 2.5 per cent of whites and 12 per cent of Negroes. The other hos-

* Read (by invitation) at a meeting of the New York Obstetrical Society, February 14, 1933, under the title, "The Importance of Establishing a Conditioned Reflex 'Pregnancy-Syphilis' in the Minds of the Medical Profession," and reprinted from *American Journal of Obstetrics and Gynecology*, Vol. XXVI, No. 1, July, 1933.

pitals, not separating the Negroes from the whites, vary to an extraordinary degree. The Berwind Maternity Clinic reports 12 per cent positives on 367 pregnant women; the Long Island College Hospital, 6 per cent on 1,200; the Coney Island Hospital, 5 per cent on 4,746; the Nursery and Child's, 3 per cent on 1,119. In contrast, hospitals with a preponderance of private patients show extremely low incidence of positive Wassermanns. Thus the United Israel Zion Hospital of Brooklyn reports 0.3 per cent on 1,477 obstetric patients. The Jamaica Hospital reports 0.2 per cent on 635.

Anyone with medical experience realizes that the spirochete is no respecter of persons. The rich become syphilitic as well as the poor but they are, on the whole, better treated and more likely to reach the obstetric clinic at a time when the Wassermann is negative. This has encouraged many hospitals of this city to omit Wassermanns or corresponding serologic tests for private patients. The obstetrician who brings in a private patient is permitted to elect whether or not that patient shall be tested for syphilis.

Now I am not an obstetrician; I am not a gynecologist; I am not a syphilologist. My interest in the prevention of venereal diseases is my excuse for appearing here tonight, representing the social hygiene committee of the New York Tuberculosis and Health Association. What I hope to impress upon you is the importance of establishing a conditioned reflex, pregnancy-syphilis, in the minds of the medical profession.

Three things are perfectly well known to me and doubtless to all of you. Syphilis, unlike gonorrhea, can almost always be so treated during the course of pregnancy that the child will not be infected. The figures of Laurent are well known: 563 untreated syphilitic pregnancies left only 26.5 per cent of infants alive at the age of three months, while the same women subsequently treated for syphilis during 161 pregnancies had 91.9 per cent youngsters alive at three months. McCord at his famous Atlanta clinic, chiefly among Negroes, reduced the stillbirths from 70 per cent to 5 per cent and increased the babies born alive from 30 per cent to 93 per cent. There is no need to multiply statistics further.

Further, syphilis, like gonorrhea, is extremely difficult to diagnose during the course of a pregnancy. Indeed we may stress the

point and say that to judge from animal experiments as well as from the phenomena of human disease, pregnancy inhibits the symptoms and lesions of syphilis.

Most of you have not lived long enough to remember that at the beginning of this century there were three kinds of congenital syphilis: paternal syphilis, maternal syphilis, and syphilis inherited from both parents. Before the Wassermann reaction came along to wipe out this beautiful theory, one of the most distinguished German syphilologists had written a book crammed full of cases illustrating the successful treatment of hereditary syphilis of paternal origin by antisyphilitic treatment of the father. Fournier had developed the beautiful theory of *choc en retour* to explain how tertiary lesions occurred after pregnancy in 60 per cent to 80 per cent of the non-syphilitic mothers who had borne syphilitic children to syphilitic fathers. This pretty theory was that these tertiary lesions were not due to the living infectious virus of syphilis (treponema being as yet undiscovered) but were due to a toxin absorbed during the nine months of pregnancy by the mother from her syphilitic child, herself thus immunized to the disease.

Reason staggered along under the weight of this theory until Wassermann and Ehrlich broke it up.

Now the excuse for venturing to summarize for you this quaint bit of medical history is because it is perhaps due to some residue of the habit resulting therefrom, that we today treat the possibility of syphilis in pregnancy with more levity than we do that of gonorrhea. To return to the proper title of this paper we must realize the importance of establishing a conditioned reflex, "Pregnancy-Syphilis," in the minds of the medical profession. Such reflex has been established as to "Pregnancy-Gonorrhea." No physician could omit to drop silver nitrate solution in the eyes of the newborn child. Yet any one of you who takes care of children is aware of lives mutilated or destroyed because a similar hard and fast rule has not been established in the minds of the medical profession with regard to syphilis. The poor are taken care of, for the routine of the clinic requires a serologic diagnosis of syphilis. The rich are not so fortunate. Let me add another phrase to your medical catchwords: "Because a woman can afford to pay for the treatment of a

syphilitic child is no reason why she should be permitted to have one."

Do not offer as an excuse your hesitation to mention syphilis to an uninformed woman. There is no need to mention it. A specimen of blood may be obtained on any one of a number of other assumptions.

In conclusion let me ask you, do you take this seriously? Do you think that a physician should be required to perform a serologic test for syphilis the moment a pregnant woman applies to him? I do, for, let me repeat:

Syphilis, like gonorrhea, is no respecter of classes. To fix that in your mind let me repeat the cynical aphorism of a French urologist, "No woman, however beautiful, can give what she has not got."

Syphilis may, like gonorrhea, be difficult of diagnosis at any time during its chronic course, but pregnancy renders syphilis particularly obscure by inhibiting its somatic lesions, leaving only the blood reactions of the disease as a means of diagnosis.

Syphilis, unlike gonorrhea, can be controlled during pregnancy by treatment.

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Prevention of Blindness as Carried On by Missouri Commission for the Blind*

The Missouri Commission for the Blind, created by Act of the General Assembly in 1915, is specifically enjoined to "adopt such measures as the Commission may deem expedient for the prevention and cure of blindness."

The importance of a strong prevention program was recognized early; little was done during the first ten years.

Prophylactic for Babies' Eyes.—During the first two years the need for general legislation for the protection of the eyes of newborn babies from ophthalmia neonatorum was brought to the attention of the State Board of Health. In 1921, because of the combined pressure of the Missouri Commission for the Blind, the State

* Read before the American Association of Workers for the Blind, Richmond, Va., June 26–30, 1933, and appearing as part of the published *Proceedings*.

Board of Health, Missouri School for the Blind, and interested physicians, a law was passed making mandatory the use of a prophylactic in the eyes of every newborn baby. The State Board of Health ruling is that 1 per cent nitrate of silver be the prophylactic used.

Examining Staff of Ophthalmologists.—An examining staff of ophthalmologists, located in various parts of the state, was appointed by the Commission in the early years, later reorganized, and the requirement set up that each member must hold a certificate of the American Board for Ophthalmic Examinations. The present staff consists of a medical director, Dr. Harvey J. Howard, an associate medical director, Dr. William M. James, both of St. Louis, and 52 other ophthalmologists who serve the Department for Prevention of Blindness absolutely without remuneration of any sort, from any source.

First Nurse Appointed.—In 1928 one full-time nurse was appointed. The director of nursing activities of the National Society for the Prevention of Blindness visited Missouri that year and remained six weeks to assist in developing a statewide program.

Department for Prevention of Blindness Organized.—In 1929 a separate department for prevention of blindness and conservation of vision was organized. Two graduate nurses with social service and medical social service training and experience, and one secretary constitute the present paid staff.

Objectives of the Department for Prevention of Blindness.—The objectives of the department include all activities which tend to promote and maintain eye health, to preserve or protect vision, to conserve limited vision, to facilitate the early discovery of persons having diseased eyes or limited vision, the provision of adequate diagnostic examinations and subsequent corrective or curative measures for the preservation or restoration of vision and eye health, and for adequate, continuous follow-up.

Promotion of Eye Health.—An educational program has been developed which includes lectures, exhibits, posters, radio talks, showing of films, publications as magazine articles in professional and lay magazines, and a news letter sent from the department, entitled "Out of Darkness With Proper Eye Care."

Courses on promotion of eye health in teacher training colleges, elementary and secondary schools, colleges, schools of nursing, of public health nursing, and of social service are being encouraged. Vision testing demonstrations are being given to groups of teachers, nurse students and graduates, and others.

Preservation and Protection of Vision.—Periodic vision tests, begun during the preschool years and continued at intervals throughout life, are being stressed; vision tests to be followed by eye examination by a competent eye physician when the need is indicated. The breaking down of the prejudice against the wearing of glasses, the practice of good posture, proper illumination, training in safe play practices and prevention of accidents, and protection of eyes in industrial occupations are other measures being emphasized.

Conservation of Vision.—The conservation of limited vision consists of developing sight-saving opportunities for partially seeing children, by providing adequate physical care and organizing sight-saving classes in schools. Some little has been accomplished, much remains to be done in Missouri. Five sight-saving classes in one city, one in another, serve a limited number of city children. Children of rural Missouri were served even less. A long stride forward was taken when in January, 1933, one hundred eighty-five volumes of thirty-eight different titles for the eight primary school grades were purchased by the Missouri Commission for the Blind and placed on the shelves of the Missouri Library Commission which circularizes books to all the rural areas of Missouri. In the first six weeks books were borrowed for children in ten (10) widely separated counties of the state.

Correction and Restoration of Vision.—Persons with eye difficulties, financially unable to care for themselves, from all save one of the one hundred fourteen counties of Missouri and all save one of the cities, are cared for by the Department for Prevention of Blindness of the Missouri Commission for the Blind, unless they have trachoma. The United States Public Health Service Trachoma Hospital, serving an area covering several states, is located in Missouri, consequently any and all trachoma cases are referred to that service. The Trachoma Service refers all Missouri cases

but trachoma to the Department for Prevention of Blindness. The St. Louis Society for the Blind cares for St. Louis and St. Louis County. Other organizations of many types, including the State Board of Health, County Public Health Departments, Public Health Nurses, social agencies, clubs, etc., likewise refer cases to the Department for Prevention of Blindness.

All applicants for the blind pension, who have a condition promising any improvement in vision, are referred to the Department for Prevention of Blindness for care.

All children seeming to be in need of sight-saving school helps or possibly admission to the Missouri School for the Blind, are referred by all departments of the Commission to the Department for Prevention of Blindness for examination, diagnosis and recommendations for education as seeing or blind individuals.

Rural Clinics.—Missouri is essentially a rural state, having only six cities of thirty thousand or more inhabitants. The majority of the ophthalmologists are located in the larger cities, leaving the vast rural population without opportunities for competent eye care. To provide for this need the Department for Prevention of Blindness, on request from local organizations, the Medical Society, or individual doctors in the county when no organization of doctors exists, holds rural diagnostic eye clinics at which members of the examining staff of ophthalmologists make the examinations, diagnoses, and recommendations for care. Nurse social workers, members of the Department for Prevention of Blindness staff, make the preliminary arrangements, take care of the necessary publicity, inspect suggested locations as the court house, a church, school or hall, assist with the examinations and interpret the recommendations to the patients before they leave.

A social history and a medical eye history are secured, the complete records taken back to headquarters, all new cases opened in the files, and every case followed up immediately by letter, further follow-up being based on the needs of individual cases varying from reinterpretation of recommendations to hospitalization, operation, after-care and long time follow-up for eye or constitutional treatment for conditions affecting eyes.

The members of the ophthalmological staff operate and care for patients without charge; the hospitals in the state have given the

Department for Prevention of Blindness special reduced rates, as have the optical shops.

Persons from as many as 13 counties have come in to one clinic; as many as 436 persons have reported for examination on one day.

Fifty-one clinics have been held in the three years since this service was instituted.

Four thousand, nine hundred and ninety persons have been examined at clinics.

June 1, 1933, 4,067 active cases were being carried from the central office, and 1,058 inactive cases, making a total of 5,125 cases.

Given an adequate personnel and budget for the development of the above program, the possibilities for constructive work in promotion of eye health, preservation, conservation, and restoration of vision, and actual prevention of blindness are unlimited.

MARY E. RYDER, Executive Director,
Missouri Commission for the Blind.

Note and Comment

Annual Meeting.—The National Society for the Prevention of Blindness held its annual meeting on November 24 in New York City. Following the reports of the president, Mr. William Fellowes Morgan, and of the managing director, was the interesting talk on "Light and Vision" given by Mr. Preston S. Millar, president of the Electrical Testing Laboratories, and director of the Society. The importance of adequate illumination, means of obviating glare, color of light and the response of the human eye to these important factors in lighting, were demonstrated by concrete illustrations and experiments. The application of these experiments to the work of the Society in conserving sight was brought out by Mr. Millar's talk.

Although the usual conference of the National Society was limited, for reasons of economy, to round-table discussions, a luncheon meeting, given with the co-operation of the North Atlantic District of the American Association of Hospital Social Workers, the Medical Social Service Section of the Welfare Council of New York City, and the Department for Prevention of Blindness of the New York State Commission for the Blind, was called on November 25 to discuss medical social eye service in relation to the community. Dr. Ellice M. Alger presided; speakers included Miss Ruth E. Lewis, associate director of social service, Washington University Clinics and Allied Hospitals; Dr. John M. Wheeler, director of the Institute of Ophthalmology, Columbia University Medical Center; and Mrs. Francis W. Little, executive secretary of the Maryland Society for the Prevention of Blindness. Practical possibilities for medical social work in eye clinics through community organizations were outlined by Miss Ruth B. McCoy, R.N., of the New York State Commission for the Blind; by Miss Sophie M. Cunningham, speaking for the Welfare Council; and by Miss Eleanor P. Brown, of the National Society for the Prevention of Blindness.

Eye Beauty—or Eye Poison?—What chances do women—and usually young women—take when they attempt to beautify their

eyes with eyelash dyes, eyelash curling fluids, or eye drops? After several reports of damage done by such eye beautifiers, the Board of Medical Examiners of the State of California declares: "It is a serious thing for anyone to use a solution of unknown content around the eyes. Some of them contain analine derivatives, and may either cause blindness or serious dermatitis." The *Journal of the American Medical Association* has records of at least 16 cases of dermatoconjunctivitis following the use of Lash-Lure, an eyelash dye. One of these cases may progress to blindness. These recorded incidents add dramatically to the pressure now being exerted to obtain federal control of cosmetics, through an act similar to that now in force for food and drugs.

From an abstract appearing in the *British Medical Journal* for October 21, it is apparent that this eye danger is not confined to the United States. A physician writing in a German medical journal on July 7 notes that henna, used commonly for hair dye, has recently become popular for darkening the eyebrows and eyelashes, and within four years he has seen six cases of severe conjunctivitis resulting from this practice. Two patients developed keratitis, one with ulceration. The author concludes that application of henna to the eyelashes is not so free from danger as has hitherto been supposed.

A timely step taken by the Board of Health of New York City was the recent amending of the Sanitary Code, prohibiting the manufacture, sale or use in beauty parlors, of the several different eyebrow and eyelash dyes which contain analine derivatives. "The use of these preparations in such close proximity to the eyes is particularly dangerous," warns New York's health commissioner, Dr. Shirley W. Wynne. New York is the first city in the country to force action in thus protecting the eyesight of its women citizens, and anticipates the steps now being taken in Washington to amend the Federal Food and Drug Act.

Eye Gnat Causing Seasonal Conjunctivitis in South.—In an investigation of some cases of trachoma in Georgia, a seasonal acute conjunctivitis, locally known as "gnat sore eyes," was noted by the United States Public Health Service. Its incidence seems to be greatest among young children. The disease, which is epidemic in

Georgia from early summer to the end of fall, has also been noted in southern California. Control measures consist of treatment in the schools and homes, and teaching of personal hygiene, combined with eradication of the breeding places of the gnats.

Schools for the Blind Face Similar Problems.—For whom are the schools for the blind intended? ask both the Perkins Institution and Massachusetts School for the Blind and the Western Pennsylvania School for the Blind, in their annual reports for the year. Both schools labor under the handicap of having committed to them blind children of uneducable mentality and children with sufficient sight to obtain education in sight-saving classes, were such classes available. Neither group should rightfully take up limited places intended for the educable blind child. Perkins Institution's director sums up the situation and its answer: "To fulfill our trust, and to maintain our standards as a school, we must insist that applicants for admission have sufficient mentality to be 'educable,' and insufficient sight to use their eyes for purposes of education."

National Negro Health Week.—Because of widespread unemployment among the people themselves, and because of threats of cutting health project budgets, the 1933 National Negro Health Week's slogan was "HEALTH FIRST—More than ever before, CARRY ON!" How this was accomplished, particularly during the week given over to special effort in this direction, is outlined in the April-June issue of *National Negro Health News*. Definite projects were undertaken in 25 states and 1,652 communities; educational health efforts resulted in distribution of literature, lectures, exhibits and clinics. The extension of this work to even greater numbers, with resulting improvement of living standards and health, is looked for in the future.

The School, First Defense Against the Spread of Trachoma.—Of the three methods of attack against trachoma in Tunisia—detection, treatment, and prophylactic education—the last named is most important in the eventual uprooting of the disease. It is among school children that trachoma most frequently is found, and it is among these children, regularly attending the same school, that treatment and education in hygienic measures may most

effectively be taught. Dr. Junès, writing on "The School and the Fight Against Trachoma," in a recent issue of the *Revue Internationale du Trachome*, believes that isolation of infected pupils is not necessary when schools have sufficient sanitary devices for washing. Not only will the school child, as a future citizen, grow up with an understanding of the value of and the necessity for care of such eye infections, but he will carry home immediately, more effectively than any other emissary, the lessons which he has learned in school in hygienic practices and healthful living.

Academy of Medicine Lists New York City Eye Clinics.—The Bureau of Clinical Information of the New York Academy of Medicine recently presented its bulletin of approved non-operative clinics. Those appearing under ophthalmology are:

Herman Knapp Memorial Eye Hospital; daily, 2.00 P.M. Dr. Arnold Knapp and staff.

Manhattan Eye, Ear and Throat Hospital; Drs. Lewis W. Crigler and David H. Webster, Monday, Wednesday and Friday, 2.00 P.M. Drs. N. De L. L. Fletcher and H. R. Skeel, Tuesday, Thursday and Saturday, 2.00 P.M.

Mount Sinai Hospital; Drs. Isadore Goldstein and Kaufman Schlivek, daily, 1.30 P.M.

Neurological Hospital; Dr. James W. Smith, Wednesday, 2.00 P.M.

N. Y. Eye and Ear Infirmary; daily, 2.00 P.M. Drs. F. W. Shine, Conrad Berens, Clyde E. McDannald, Ben Witt Key, Webb W. Weeks and Bernard Samuels.

Polyclinic Hospital; daily, 3.00 P.M. Drs. Ervin Torok, Monday, Wednesday and Friday, and C. E. McDannald, Tuesday, Thursday and Saturday.

Post-Graduate Hospital; Daily at 3.00 P.M. Monday and Friday, Dr. Ellice M. Alger. Tuesday and Thursday, Dr. Martin Cohen. Wednesday and Saturday, Dr. Manuel Troncoso.

Eye Defects Now Apparent at Earlier Age.—In a Somerset school in England it has been noticed that eye defects tend to show themselves at an earlier age than was the case ten years ago. It has been found that the number of eye defects found in children below the age of eight years is now treble the number found in this group ten years ago. This is thought to be because young children sleep less than formerly; and, further, it may be accounted for by the fact

that, whereas formerly young children learned to write with chalk at a blackboard, they are now using lead pencils on lined paper, causing too great eye fatigue for children who are farsighted.

Scholarship Improved by Light.—The direct benefits of good, controlled lighting have been studied for a period of three years in a school in Tuscumbia, Alabama, and, while many of the results are intangible, it has been concretely demonstrated that improved lighting lessens to a large extent school failures. In one sixth-grade schoolroom, a photoelectric ray automatically controlled the illumination during school hours. In a similarly situated sixth-grade classroom in the building, lighting was controlled by a hand switch. The three-year average shows that the first classroom was artificially illuminated one-third of the time, three times as often as the second, while its classroom failures were one-third as numerous as those of the class where the illumination was manually controlled and, in ratio to enrollment, were about a third that of the other class. Of equal importance was the teachers' testimony: "The children in room I (where the automatic lighting was used), were much more alert, cheerful and attentive, while those in room II seemed restless and sleepy on dark days and were harder to teach." Of practical interest is the cost of the extra illumination: the additional electricity used in room I averaged $24.33 a year; the annual cost of educating each pupil per year is $28. By preventing the failure of six pupils each year, this extra electricity earned $144.

This concrete evidence of the practical gains of good illumination was presented at the annual convention of the Illuminating Engineering Society, at Camp Illumination, Lake Delavan, Wisconsin, August 28–Sept. 1, by D. W. Atwater. Of equal interest was the talk given by M. Luckiesh and Frank K. Moss on "The Applied Science of Seeing," which reviewed the principles involved in improving lighting to improve sight.

Perfected Stereoscopic Test.—In 1903, before airplanes and air travel were more than ideas to conjure with, and when even automobile traffic brought out a curious throng, accurate measurement of stereoscopic vision was not as important as it is today. In 1903, Dr. F. H. Verhoeff, an ophthalmologist in Boston, arranged a test

not requiring depth discrimination, for the determination of stereoscopic vision. To this test he has recently added further refinements, based upon the perception of luster and upon the principle that when two disparate retinal images are made unequal in intensity, the position of the image resulting from their "fusion" is shifted toward the more intense image.

Presbyopia—A Life Expectancy Yardstick.—The amount of presbyopia in an individual may be a dependable indicator of life expectancy, according to Heinz Steinhaus, whose study of the relation of presbyopia and duration of life was discussed in a recent editorial in the *Journal of the American Medical Association*. Dr. Steinhaus believes that presbyopia in an individual, measured against the average amount of presbyopia for the age, will foretell the life expectancy of the body as a whole. This loss of accommodation for near vision presages the general senility of the body; when the amount of presbyopia is less than is usual for the age, an extension in life expectancy of as much as ten years may be promised. If, on the contrary, the presbyopia is above the amount expected at the age, it is significant of the fact that body degeneration is proceeding at a quicker pace than usual, and the outlook for a life span of the Biblical promise of "threescore and ten" is not hopeful. This information can be of little value to the patient, since promise of long life may be nullified by accident; certainly, to those with signs of early senility the knowledge is only worrisome. But for the purposes of determining life insurance risks in persons over forty years of age, this new index of life expectancy may have decided value.

Sight Conservation Loses Noted Friends.—The passing of Ernest E. Maddox, eminent British ophthalmologist, is noted with regret. Prevention of blindness workers and ophthalmologists all over the world, as well as in his own country, will feel his loss. Invention of the cheiroscope, a device for developing fusion in cross-eyed children, gave Dr. Maddox international fame and furnished impetus to this type of treatment here in America.

We share the sadness felt by all organizations for the blind and for the conservation of vision at the tragic death in a railroad accident of Pierre Villey, secretary general of the Valentin Haüy

Association. Dr. Villey was a student and a scholar whose book, *The World of the Blind*, interpreted the peculiar problems and compensations of the blind with sympathy as well as understanding.

Health Education for the Masses.—How health is demonstrated to large groups of people is the subject of the Milbank Memorial Fund's annual report. Appropriations have been made for the health demonstration in Ting Hsien, China, the Cattaraugus County (New York) demonstration, and local health demonstrations in New York City. The Fund has been concerned with the development of practical programs, the application of scientific knowledge in the administration of health and welfare, and improvement of administrative procedures. But, partly as a logical development from its experience, especially during the past decade, and partly because of the exigencies of a severe economic depression, the Fund has been influenced by a broader conception of what public health and social welfare mean. A concrete example of work which the Fund has aided financially is reported in "Education for Healthful Living in the Public Schools of Bellevue-Yorkville, 1927–1931," by Nina B. Lamkin, prepared under the direction of Savel Zimand, administrative director of the Bellevue-Yorkville Health Demonstration in New York City. The general objectives—co-operation in a health education program which would be an all-day influence; assistance to the classroom teacher in interpreting healthful living; assistance to teachers in evaluation of progress in teaching healthful living in terms of child growth and development—have been reached, as this report of methods shows.

Medical Social Work in England.—The growth of professional medical social work in eye clinics in this country leads to a natural interest in similar efforts being made by the British Prevention of Blindness Committee in the Ophthalmic Hospital Experimental Scheme, which is reported in the *British Journal of Ophthalmology* for August, by J. D. Magor Cardell. A voluntary worker with no previous ophthalmic training was placed in the out-patient department of the Central London Eye Hospital for three months, where she was instructed in the rudiments of eye diseases and methods of treatment. Dr. Cardell, who trained the worker and

made the experiment, found that with the services of this trained voluntary worker many causes for non- or irregular attendance at the clinic might be obviated by obtaining the co-operation of family or other agencies. He found, further, that continued treatment materially aided in producing successful outcome of the case; that, through the home visits of the voluntary worker, a greater understanding grew up between the physician and the patient, as well as the patient's family, resulting in recognition of the patient's problems on the doctor's part and in better carrying out of prescribed treatment on the part of the patient. The Prevention of Blindness Committee promises to aid other hospitals in planning a similar scheme for the better treatment of its eye patients.

Infected Eyes.—"How to put a value on a useful eye is unknown. It cannot be measured in dollars and cents either to the owner or to the public. Every eye that has pus between the lids is more dangerous than a rattlesnake, and it is up to the family physician and the oculist to do away with the danger." So concludes an editorial in the Wyoming Section of *Colorado Medicine* for November, calling attention of general practitioners to the great danger of eye infections not adequately treated.

Prevention of Blindness Propaganda Spreads in France.—The growing interest and enthusiasm in France for sight conservation measures are ably illustrated in the three publications, recently issued, on different aspects of prevention of blindness. "Five Lessons on the Prevention of Blindness in Childhood," issued by the Ophthalmic Clinic of the Hôtel-Dieu, in Paris, and the Child Hygiene Bureau (École de Puericulture), is a compilation of clinical material on eye diseases and disorders in childhood, presented in scientific, yet understandable, style for teachers and health officers, to whom the health of young children is entrusted. Responsibility for the conservation of vision, as part of general child hygiene, is placed upon the parents, the teachers and nurses, the physicians, and the social agencies.

Of different import, for a popular audience, is "Help Us Fight Trachoma," a bulletin published and circulated by the Bureau of Public Health in Morocco. Illustrated to show typical trachoma-

tous lesions, the text on trachoma pathology is simple and concise. More dramatic is the section of "Practical Rules for Care of the Eyes." Following the French text is the same material in the native tongue.

At the Sixth Congress of the Association of French Industries Against Industrial Accidents, Prof. de Lapersonne, president of the International Association for Prevention of Blindness, spoke forcefully and to the point on prevention of eye injuries in industry, stressing the need for ascertaining the prevalence and type of eye accident, the importance of early and adequate ophthalmological treatment for any eye accident occurring, and the value as preventive measures of eye goggles, screens and veils. The report of this conference is published in the October, 1933, issue of *Protection*, the magazine for industrial safety in France.

How Much Should the Public Know About Venereal Disease?—Social hygiene education is being more generally accepted in all classes and groups of the general public; Dr. Carolyn N. Macdonald, writing in the September issue of the *Illinois Medical Journal*, would take the subject of venereal diseases out of the limbo of sex prudery and into the field of public health. She would tell people of the fact that venereal disease is not the wages of sin but the result of ignorance. The fact that 52 per cent of syphilitic babies who live are handicapped by keratitis, and that babies born to mothers with gonorrheal infection may become blind, should be stressed as consequences of ignorance which is no longer bearable. Frank discussion of the communicability and the methods of cure of venereal disease, with less emphasis upon the moral issue, would lead to greater efforts to eradicate and prevent these diseases.

National Society Notes.—The National Society is pleased to announce some additions and changes on its staff: Mr. Theodore O. Yoder, who has been associated with the American University in Cairo, Egypt, in its prevention of blindness program, and Dr. Anette M. Phelan, instructor in health education at Teachers College, Columbia University, now on leave of absence from the University, are now staff associates. Miss Eleanor P. Brown, formerly secretary, has been appointed an associate director, to

take charge of the special interests of medical social service in eye clinics; Miss Regina E. Schneider now serves as secretary.

Mr. Lewis H. Carris, managing director, presided at the session on "The Eye and Its Relation to Safety," during the annual meeting of the National Safety Council in Chicago; he also participated in the jury to discuss "Is There a Common Objective in Public Health Education Around Which All Health Organizations Can Rally?" at the annual conference of the American Public Health Association in Indianapolis. "Union of Forces to Promote Prevention" was the subject of a paper presented by Mr. Carris at the meeting of the National Rehabilitation Association in Chicago.

Following the impetus given the project of conservation of sight through treatment of syphilitic expectant mothers, at the annual meeting of the American Medical Association, Dr. Park Lewis, vice-president, and Mr. Carris attended a meeting of the Board of Trustees of the Association in Chicago, when plans for complete tests and thorough care of every expectant mother were discussed.

Of importance to sight conservation of the school child were the meetings at which Mrs. Winifred Hathaway, associate director, spoke in Portland, Maine; Washington, D. C.; and Knoxville, Tennessee, on sight-saving class work. In co-operation with New York University, Mrs. Hathaway addressed the class in "Education and Adjustment of Physically Atypical Children" on the phases of education of partially seeing children. She also addressed the class of the National Tuberculosis Association at Teachers College, Columbia University, on "Lighting the Schoolroom."

Invitation has been extended to Mrs. Hathaway to serve on the Committee on Industrial and School Lighting of the Illuminating Engineering Society. Besides its advisory duties in relation to the Illuminating Engineering Society, this Committee is acting as the Secretariat on Industrial and School Lighting for the International Commission on Illumination.

Interest aroused by the distribution of "Suggestions for a Program of Eye Health in a School System" brought an invitation for Miss Mary Emma Smith, R.N., director of nursing activities, to visit schools in North Carolina, to assist in the initiation of an

eye health program in that state. Her survey has taken six weeks and has carried her to all parts of the state.

Miss Brown represented the Society at the National Negro Health Week Conference, in Washington, D. C. She also spoke on sight conservation to students from the health education course of Hunter College, New York City. Both Miss Brown and Mr. David Resnick, director of publicity, continued the long-established co-operation with the radio program of the New York Tuberculosis and Health Association, and presented talks on sight conservation.

Current Articles of Interest

Eyes Down the Fairway, Johnny Farrell, *Golf Illustrated*, July, 1933, published monthly by Golf Illustrated, Inc., New York, N. Y. Good vision does not make good golf, but good golf is impossible without accurate sight. A champion player tells of the handicap of poor vision in golf, and advises the same consideration of eyesight hazards in the game of golf as of any other part of the game. Many good golfers have retrieved a slackening game through correction of vision defects with glasses.

Retinitis of Pregnancy, George W. Vandegrift, M.D., *American Medicine*, August, 1933, published monthly by the American Medical Publishing Company, Inc., New York, N. Y. Although retinitis during pregnancy is fortunately a rare occurrence, its appearance demands prompt recognition and treatment. A case is described, occurring during the last month of gestation, in which forcing labor brought an end to the vision limitation. Ophthalmologists recognize the fact that the vision of the mother is as important to her as her life, and more important than the life of the child. Prompt termination of pregnancy will usually relieve the symptoms if the condition has not persisted.

Transmissibility of Trachoma to Monkeys, L. A. Julianelle, Ph.D., and R. W. Harrison, Ph.D., *American Journal of Ophthalmology*, October, 1933, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. The eyes of monkeys can be infected with the material obtained from swabbing or grattage of trachomatous human eyes, and a resulting follicular conjunctivitis, specific in character, appears within one to two weeks. The probabilities are that the agent is not, as a rule, filterable.

Developmental Myopia and the Treatment of Myopes, John Parsons, M.B., *Lancet*, October 7, 1933, published monthly by the Lancet, Ltd., London, Eng. The author describes five types of myopia—axial myopia, curvature myopia, index myopia, forward displacement of the lens, and a combination of any two or more of these factors. He contends that deviation from the ideal normal

does not in itself constitute a great menace, and shows that for certain types of work a slight degree of myopia may be an asset. He urges, however, optimum working conditions for those with myopia—proper correction with glasses, good lighting, proper working posture and distance, and particular attention to the maintenance of general good health—as precautions to take against the possibility of progression of the defect.

The School that Found Vision, Olive Grace Henderson and Hugh Grant Rowell, M.D., *Child Welfare*, October, 1933, published monthly by the Child Welfare Company, Inc., Washington, D. C. Good lighting and proper posture relieve eyestrain; in a model classroom it was found that simple apparatus and rules contributed to greater eye comfort for the children. Bookracks for reading helped to maintain good posture; study of lighting and improvement of artificial illumination prevented eyestrain from shadow or glare; well-printed books on unglazed paper preclude reflected glare and make seeing easier. All of the efforts to ease eyesight were of such type that they may well be transferred to the home, not only to the children's study hour, but for all the family reading.

The Ocular Conditions in Diabetes Mellitus, W. A. Gray, *British Journal of Ophthalmology*, October, 1933, published monthly by the British Journal of Ophthalmology, Ltd., London, Eng. An ophthalmoscopic examination in diabetes mellitus is helpful in assessing the general condition of the patient; it is valuable for detecting the presence of arteriosclerosis and in foreseeing the approach of coma and determining its degree. In spite of careful treatment, retinitis usually advances and is a frequent cause of failure of vision, while the danger of vitreous hemorrhage is ever present. There seems to be some relation between the progressive deterioration of vision (cataract and retinal hemorrhages) and the presence of sepsis, probably from the ensuing progression of the diabetes.

Conserving the Sight of School Children, Estella Lawes, *Parents and Teachers Magazine*, November, 1933, published monthly by the Federation of Mothers Clubs of Cincinnati and Vicinity, Cincinnati, Ohio. A plea to parents to aid in the conservation of children's sight through recognition of the importance of the cor-

rection of eye defects, by protection from dangerous games and toys; by provision of proper illumination in the home. The theory and practice of sight-saving classes for children with seriously defective vision are outlined.

The Eye in Eclampsia, Gordon M. Bruce, M.D., *American Medicine*, August, 1933, published monthly by the American Medical Publishing Company, Inc., New York, N. Y. In the eye of the toxic mother, we have a useful diagnostic and prognostic aid. Toxic amaurosis is one of the most valuable signs of an impending eclampsia. The retinitis of pregnancy differs in appearance from the retinitis of renal origin, and offers hopeful prognosis.

Trachoma in Egypt, Peter K. Olitsky, M.D., and Joseph R. Tyler, *Archives of Ophthalmology*, October, 1933, published monthly by the American Medical Association, Chicago, Ill. Comparative studies of trachoma, occurring in Egypt and in the United States, have led the authors to the conclusion that Egyptian trachoma is essentially the same disease as that found in the United States, differing in minor aspects only. In studies made both in New York and in Egypt, no other causal factor than the *Bacterium granulosis* of Noguchi was found—a deduction which tends to strengthen further the causal quality of *Bacterium granulosis*.

Metabolism of the Normal and Cataractous Lens, Peter C. Kronfeld, M.D., *American Journal of Ophthalmology*, October, 1933, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. An interesting account of biochemical studies of the lens, normal and cataractous. The author concludes his summary of the study of lens metabolism: "It is impossible to predict at this time how close to an understanding of the cause of cataract we can come with biochemical methods. . . . At this time it looks as though it would be a life-long task for several men if all the trails pointed out by our present knowledge concerning the metabolism of the lens are to be followed."

Sight-Saving Classes in Chicago, Dorothy Hosford, *Seer*, November, 1933, published quarterly by the Pennsylvania Association for the Blind, Inc., Pittsburgh, Pa. A report of the organization of sight-saving classes in Chicago. The author finds significant:

"Although the Board of Education in Chicago has found it necessary to inaugurate a program of the strictest economy . . . not one sight-saving class has been discontinued."

Cataract in the Albino Mouse Resulting from a Deficiency of Vitamin G (B_2), William C. Langston, M.D., Paul L. Day, Ph.D., and K. W. Cosgrove, M.D., *Archives of Ophthalmology*, October, 1933, published monthly by the American Medical Association, Chicago, Ill. When young albino mice were placed on a diet adequate in every respect except a supply of vitamin G, it was found after 43 days that 79 per cent of them developed keratitis, and, after 48 days, 96 per cent developed cataract. Within 50 days, ophthalmia developed in 57 per cent of the cases. From the experiment, it would appear that lack of vitamin G was the sole cause of the keratitis, cataract and ophthalmia.

Conservation of Vision, B. E. Johnson, R.N., *Canadian Nurse*, August, 1933, published monthly by the Canadian Nurses Association, Montreal, Canada. Eye health must be related to general health through their co-ordination in the school health examination. The school period is often most trying for the visual function, since eye application is constant; therefore, school health authorities must give real consideration to problems of school vision testing, to sufficient light in classrooms, and to hygienic measures which insure eye protection.

Etiology of Ocular Disease, Harry S. Gradle, M.D., *Illinois Medical Journal*, September, 1933, published monthly by the Medical Profession of Illinois, Oak Park, Ill. The main causes of ocular disease are as a rule related to general health; and, while the oculist may treat the local condition, he must turn to the internist to discover the remote causes of ocular disease. The close co-operation between general medicine and ophthalmology is an important factor in the prevention of visual deterioration in eye disease.

Book Reviews

DISEASES OF THE EYE. Hofrat Ernst Fuchs. Fifteenth German edition, revised by Maximilian Salzmann and translated by E. V. L. Brown, M.D. Tenth English edition. Philadelphia: J. B. Lippincott Company, 1933. 641 pp. Ill.

The original translation of Fuchs by Duane became so much a part of the armamentarium of the ophthalmologist that one could speak of the "Bible of Ophthalmology" with the knowledge that everyone would understand the reference. The reader could peruse its coarse print to brush up his knowledge of classical pictures. He could revel in his study of the fine print to satisfy his yearning for unusual conceptions and refinements of interpretation. With each succeeding edition, the volume increased in wealth of material and improvement of arrangement. This made later editions a bit unwieldy, but nevertheless dear to the heart of the student.

Since any work, when kept up to date, has an innate tendency to grow more massive, the translator of this new volume found it advisable to delete certain sections. This pruning affected, for the most part, the sections on methods of examination and muscular anomalies. This is a bit unfortunate in view of the fact that, beyond the small work of Lang, we have no source to which to turn, dealing with the technique of our multitudinous procedures; and, again, Duane supplied material on muscular anomalies which he dealt with in his peculiarly attractive manner, not to be found in other works on the subject. He felt so keenly that this section needed elaboration, rather than restriction, that he was preparing a separate volume on the subject at the time of his death.

These remarks should, however, not lead one to feel that the reviewer depreciates in any way the present volume. It will, without doubt, hold a place well in first ranks of ophthalmological literature, and its pages will always glow with a certain familiar touch imparted to it as a descendant of the parent.

The undergraduate will find *Diseases of the Eye* a very essential part of his library, and the established practitioner will find frequent reference to its pages of the greatest material help in his

daily work. One would feel that certain refinements in the manner of presentation of the material on therapeutics would add to the completeness; that the bacteriology, particularly on trachoma, could be elaborated to advantage, and that a classification of certain of the neuroretinal disorders—amaurotic family idiocy, Leber's Disease, etc.—would be helpful in making the book more modern in its conceptions. Of course, this is, in a sense, an unfair criticism of a translation, for naturally the translator is limited by the scope and form of the original.

All in all, the reviewer feels that the work is a real addition to textbook literature, and very much worth while.

JOHN N. EVANS, M.D.

AN EXPERIMENTAL INVESTIGATION OF EYE MOVEMENTS IN LEARNING TO SPELL WORDS. Psychological Monographs, No. 196. Luther C. Gilbert. Princeton: Psychological Review Company, 1932. 81 p.

In this experimental study the author has compared the oculomotor and perceptual habits of good and poor spellers, from the third grade of the elementary school through senior high school, by analyzing photographic eye-movement records. At every grade level, the good spellers employed fewer fixations, a shorter study time, briefer and less variable pauses, a broader study unit and fewer regressions than the poorer spellers. The study of spelling appears to be characterized to a large extent by forward progression of fixations across the word, then another cross-passage of fixations, etc., until the word is considered learned. However, this forward progression is interrupted more or less by regressions of various types. Efficient procedure in studying spelling, as represented by the oculomotor habits of the better spellers, was found to vary with maturity. The younger learners tended to explore each word minutely while the more mature students apprehended parts of the word in larger units and tended to concentrate on hard sections. The study habits of poor spellers are the antithesis to that of efficient spellers. The author fails to emphasize the fact that efficient or inefficient oculomotor performance in learning to spell is merely symptomatic of efficient or inefficient central processes of perception.

By means of averages and curves the author has attempted to show growth curves for all the eye-movement measures considered. On the basis of these data rather definite conclusions are drawn concerning the development of oculomotor habits in learning to spell and concerning the implications of these changes. This procedure and the resulting conclusions constitute an unfortunate part of an otherwise commendable piece of research. The conclusions concerning growth in efficiency of the functions concerned are very likely fallacious and misleading for the following reasons: (1) the author has neglected the possible influence of the sampling errors which must be present in his data since only three or four subjects constitute the good or poor group of spellers at each grade level; and (2) he has also failed to consider the influence of selection which, from the middle elementary grades onward, operates to eliminate the inefficient student from school. It is possible and even probable that the growth curves of a single group of individuals, measured on successive years, would reveal different trends from those reported here. The critical reader will await further research for an adequate determination of growth curves in these functions.

The second part of the monograph, which gives an analysis of methods of attack in study procedures and the resulting implications for teaching and remedial work, is a fine contribution and by far the most important part of the investigation. Both the teacher and the research worker will profit by considering the contents of this book, which is a preliminary investigation of real merit in the field.

MILES A. TINKER, PH.D.

ON SOME HEREDITARY STRUCTURAL ANOMALIES OF THE EYE AND ON THE INHERITANCE OF GLAUCOMA. Julia Bell, M.A., M.R.C.P. The Treasury of Human Inheritance, Volume II, Anomalies and Diseases of the Eye, Nettleship Memorial Volume. London: Cambridge University Press, 1932. Pp. 425–555. Ill.

This work represents a lively interest and inspiration well worthy of a memorial to Edward Nettleship. Ardent investigator of ocular defects in heredity, Nettleship worked out many excellent pedigrees from which he was able to draw important conclusions.

The ophthalmologist and all interested in heredity will appreciate the great value of Dr. Bell's work as a reference source, the subject matter of which has been thoroughly worked up, analyzed, sifted out and brought together to make a unique volume.

Anomalies in the size of the eye—anophthalmos, microphthalmos, megalocornea, buphthalmos, and glaucoma; some anomalies in the development of the iris—aniridia, coloboma of the iris and ectopia lentis are dealt with thoroughly and with thoughtful care as to the accuracy and arrangement of the material selected.

The name index to the chronological bibliography and to the recorders of pedigrees, with descriptions of pedigree plates and illustrative plates—all are complete and essential in the development of our knowledge and study to establish the definiteness and permanency of the laws of inheritance.

Dr. Bell's work in this volume is quite in line with the thought expressed by Nettleship when he said, "The solution of question of heredity depends on the accumulation of masses of reliable statistics based on accurate observations by students the world over."

WEBB W. WEEKS, M.D.

Briefer Comment

TEACHERS' PROBLEMS WITH EXCEPTIONAL CHILDREN. I. BLIND AND PARTIALLY SEEING CHILDREN. Beatrice McLeod. Pamphlet No. 40, Office of Education. Washington: United States Government Printing Office, 1933. 32 p.

Education that prepares for a contributing adult citizenship is the birthright of every child. It is important for the realization of this ideal that the teacher, and particularly the teacher of the rural school, recognize those children whose handicaps prevent fullest appreciation of educational advantages, and that she know how and from what sources she may apply first aid in giving them equalized opportunities with their more fortunate classmates. This pamphlet outlines recognized procedure in dealing with the problems of blind and partially seeing children; suggesting steps in the conservation of vision, symptoms of eye disorder or derangement, methods of testing vision (emphasizing the prime necessity

of vision testing in the kindergarten and first grade), and the methods of educating those with such defective sight that ordinary methods of instruction are impossible, or constitute a danger to remaining sight. Bibliography, pamphlets to be secured at small cost, and periodicals on the special topic are listed with fine regard for the whole field of prevention of blindness and care for the blind. Of great assistance, too, is the list of directors of special education for those states providing for the education of exceptional children.

INDUSTRIAL REHABILITATION, Sixth Biennial Report of the Industrial Rehabilitation Division, Bulletin No. 17. Madison, Wisconsin: State Board of Vocational Education, 1933. 55 p.

Describing its activities for the reorientation of the physically handicapped person in economic and social life, the Wisconsin Industrial Rehabilitation Division outlines its procedure of employing to the fullest local organizations and institutions in its statewide program. Some of the outstanding cases are presented, showing that physical disability need not preclude successful adjustment to life.

SOCIAL WORK YEAR BOOK. Second Issue. Fred S. Hall, Editor. New York: Russell Sage Foundation, 1933. 680 p.

This second edition of the *Social Work Year Book*, following the general plan of the first reference book on organized social work and related fields, is one-eighth larger, and includes thirty new topical articles. As in the former edition, Part I is devoted to an authoritative record of organized activities, and Part II describes the 836 agencies operating in the social field. The thorough commendations which greeted the appearance of the first edition will again be echoed for the second.

COLLECTED REPRINTS FROM THE WILMER OPHTHALMOLOGICAL INSTITUTE OF THE JOHNS HOPKINS UNIVERSITY AND HOSPITAL. Vol. III, January, 1932, to June, 1933. Baltimore: Johns Hopkins University, 1933.

A thoroughly comprehensive library of recent, reprinted articles in ophthalmology, covering many branches of the specialty, and representing the work of many of the well-known ophthalmologists and persons in allied professions.

THE HANDICAPPED CHILD. Report of the Committee on Physically and Mentally Handicapped, White House Conference on Child Health and Protection. New York: The Century Company, 1933. 452 p.

Physically handicapped children—the lame, the blind, the deaf and those sick in body and mind—have a right to a life in which their "handicap casts no shadow, but which is full, day by day, with those things which make it worth while, with comradeship, love, work, play, laughter and tears—a life in which these things bring continually increasing growth, richness, release of energies, joy in achievement." Thus reads the bill of rights for handicapped children; detailed studies in how this ideal may be realized follow in the sections on the Deaf and Hard of Hearing, the Visually Handicapped, the Crippled, as well as on those handicapped with diseases of internal nature, and on the mentally handicapped. The chapter on the Visually Handicapped, of greatest interest to our readers, outlines possibilities for greater expansion of education for those with defective vision, and develops the importance of a working sight conservation program, through preventing blindness from ophthalmia neonatorum, through raising child health standards, through school eye inspections, and through medical and social follow-up of those whose sight or visual faculty is impaired. A selected bibliography suggests sources for fuller studies in this field.

Contributors to This Issue

Dr. Willis S. Knighton, whose contributions have appeared in the SIGHT-SAVING REVIEW from time to time, is a New York City ophthalmologist on the staff of the New York Eye and Ear Infirmary.

Dr. William L. Benedict is head of the Section on Ophthalmology of the Mayo Clinic at Rochester, Minnesota. His paper which appears in this issue was also broadcast over the Yankee network in New England.

Dr. Arthur P. Wilkinson specializes in eye, ear, nose and throat practice in Detroit, Michigan.

Dr. Albert Louis Brown, who is connected with the Cincinnati Children's Hospital Research Foundation, is a practicing ophthalmologist in Cincinnati.

Mrs. Helen B. Jones, who taught one of the first sight-saving classes in Virginia, received her special training at Teachers College, Columbia University; she is supervisor of sight-saving classes in Virginia, on the staff of the Virginia Commission for the Blind.

We are glad to welcome again to our pages **Dr. Philip A. Halper,** who is on the faculty of the University of Illinois College of Medicine and ophthalmologist at the Michael Reese Hospital.

Among the book reviewers: **Dr. John N. Evans** is director of research at the Brooklyn Eye and Ear Hospital; **Dr. Miles A. Tinker** is assistant professor of psychology at the University of Minnesota; **Dr. Webb W. Weeks** is professor of ophthalmology in the New York University and Bellevue Hospital Medical College.

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